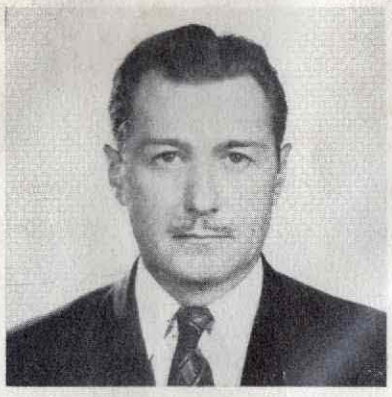

ROBERT TRUMBULL

Robert Trumbull, who comes from a family of actors, was born in Chicago. Raised in the traditional theatrical trunk, he picked up his education in bits and pieces until he finally landed at the University of Washington in Seattle. Sent to Hawaii on a ROTC naval cruise, he jumped ship to take a job as cub reporter on the Honolulu *Advertiser*. "Stayed 13 years on *Advertiser*, where became city editor so young that grew mustache to look older . . . fooled nobody . . . now thinking of shaving off mustache to look younger."

His big professional break came with the Japanese attack on Pearl Harbor, after which he joined the staff of *The New York Times* to report from the heart of our Pacific war operations. One of his stories, an interview with 3 Navy airmen who had been forced down in the South Pacific and spent 34 days in a tiny rubber raft, was expanded into *The Raft*.

Mr. Trumbull, covered D-day landing operations in the South Pacific, witnessed sea battles from decks of U. S. naval vessels, and was on hand at the Japanese surrender on the *Missouri*. He was one of the few individuals who saw the entire Pacific war from attack to surrender. After the war he spent a vacation in New York, returned to the East, and became an authority on India (*As I See India*)

Of his present book, Mr. Trumbull's "hope is that it will bring home to people that war is no longer confined to the front lines; new weapons, like the atomic bomb, bring combat conditions to everyone's living room. That point being understood, I then hope through this account of Hiroshima and Nagasaki to show something of what the next war may be like for the ordinary individual everywhere. I look upon the book, not as a message, but as factual reporting that I believe should be of interest to everyone in the world, to whom it can happen."

ROBERT TRUMBULL

NINE WHO SURVIVED HIROSHIMA and NAGASAKI

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NINE WHO SURVIVED HIROSHIMA and NAGASAKI

Personal experiences of nine men who lived through both atomic bombings

ROBERT TRUMBULL

author of THE RAFT

SIXTH PRINTING

NINE WHO SURVIVED HIROSHIMA AND NAGASAKI

Personal Experiences of Nine Men Who Lived Through Both Atomic Bombings

By ROBERT TRUMBULL

ILLUSTRATED WITH PHOTOGRAPHS

The Japanese who survived the atomic bombings of both Nagasaki and Hiroshima are some of the most valuable people in the world. Now for the first time these men share the knowledge they gained then at such terrible cost—a knowledge which is vital for all humanity. It is an incredible and pitiful story by human beings who, up to now, have been only a statistic in the Atomic Bomb Casualty Commission's records—an inexpressibly moving tale of personal suffering and stoicism in the face of disaster.

The men are from all walks of life—from the publisher of a leading Nagasaki newspaper to a dockyard laborer. Like the 255,000 other inhabitants of Hiroshima, they were utterly unprepared for the Bomb. Eight of the nine acci-

(Continued on Flap II)

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(Continued from Flap I)

dentally or deliberately took cover in the few seconds which elapsed between the unearthly flash of light and the blast, which, in Hiroshima, wiped out about 64,000 citizens at a stroke and burned and maimed 72,000 more. The ninth was caught en route between his home and his plant. When they struggled to their feet and looked about them, the city they knew had vanished. In its place was a wasteland of flattened buildings and blackened earth lit by myriads of tiny flames and peopled with bodies so horribly burned they were almost unrecognizable as human beings.

In the three days that followed each man for some reason made his way to Nagasaki by train—of them all the most pitiful, perhaps, was the young bridegroom who took the journey in order to return the charred bones of his young bride to her family. They were the first survivors of the Hiroshima holocaust Nagasaki had seen. As they were describing their horrible experience, they saw the unearthly flash of light a second time. "There, you see it: That's what I mean!" each one cried as he forced all those with him to take cover.

The impact of this epic story, as told by Robert Trumbull, is tremendous. To know what these men endured, and how they survived is supremely important for us all.

ROBERT TRUMBULL

NINE WHO SURVIVED HIROSHIMA and NAGASAKI

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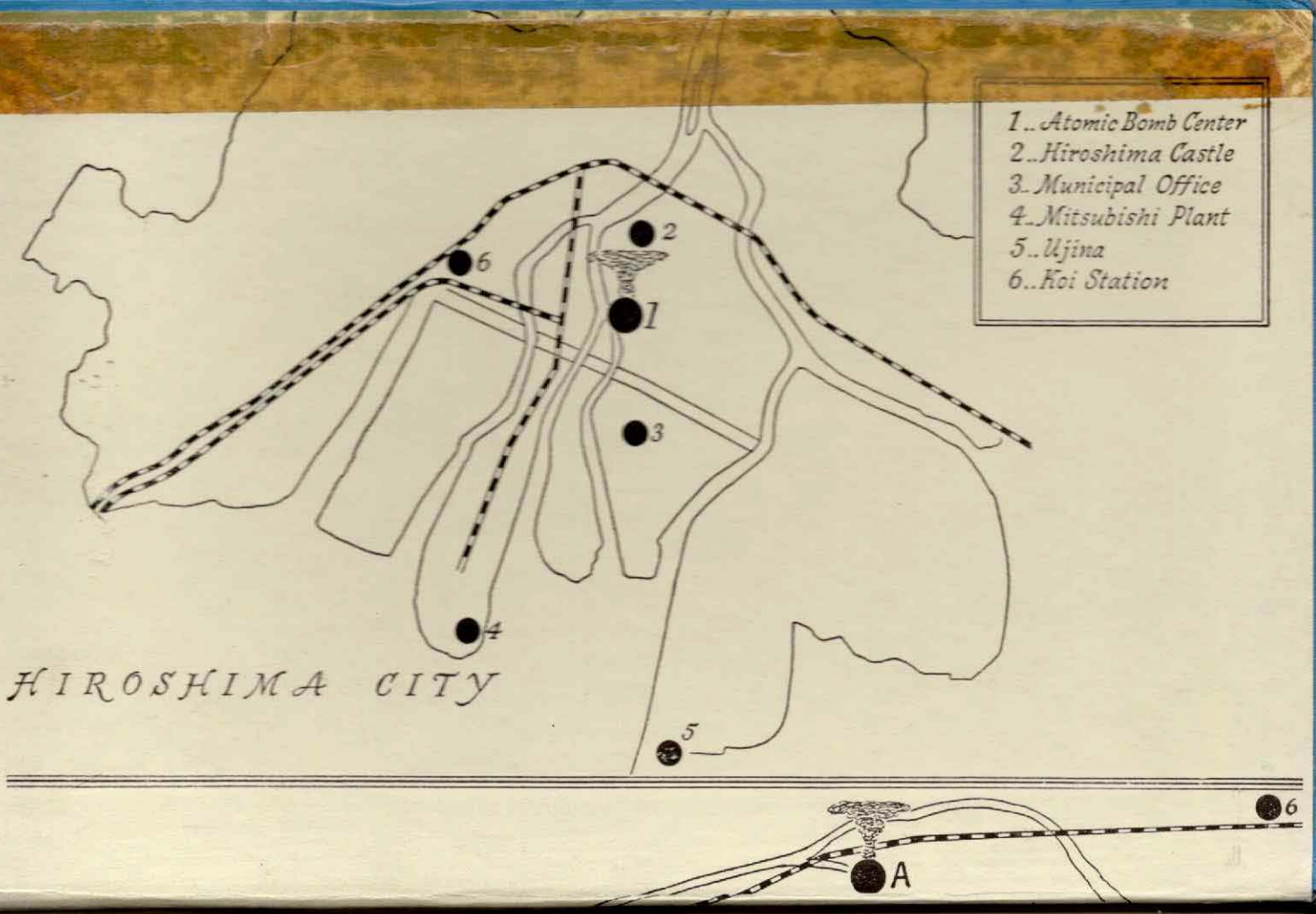

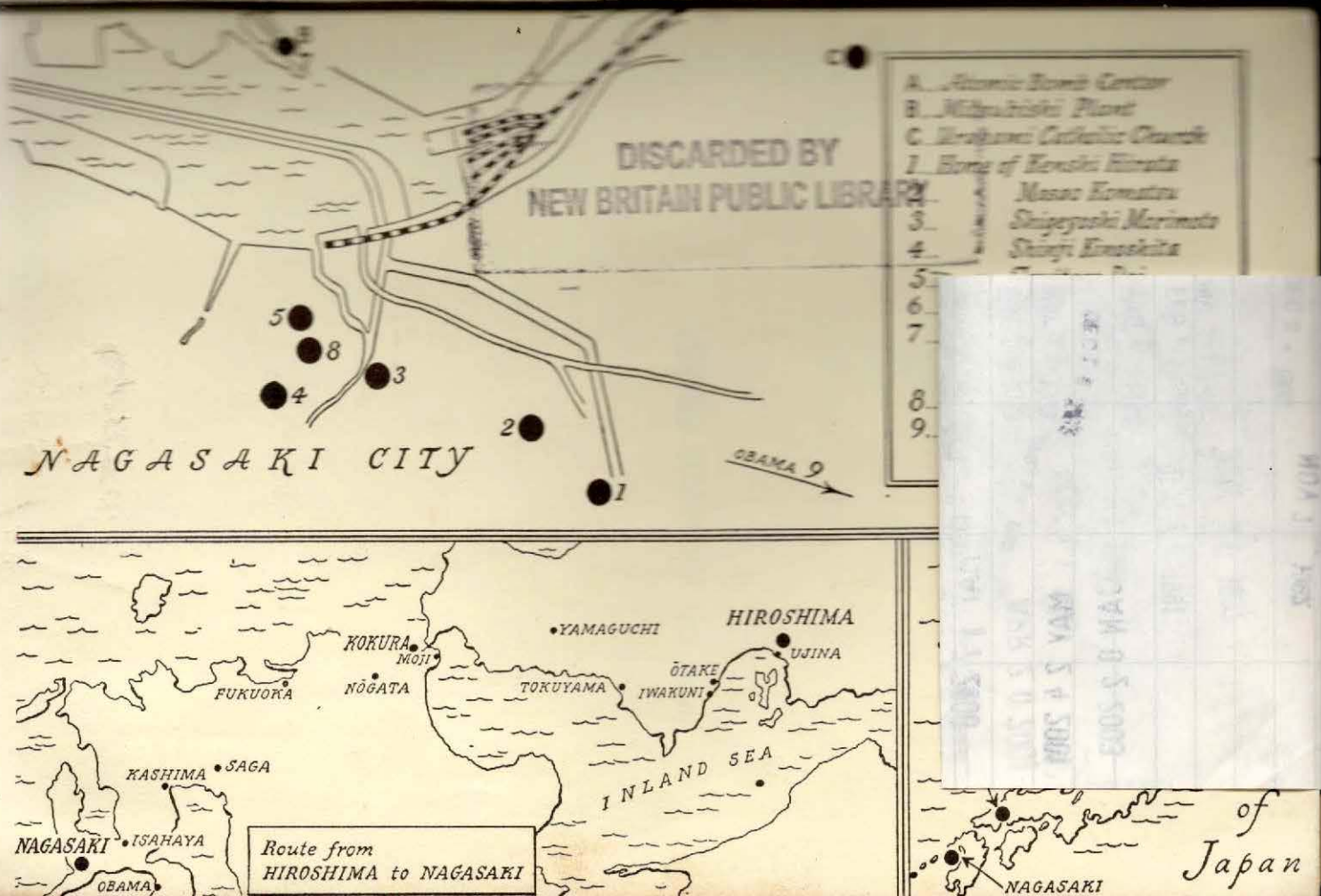

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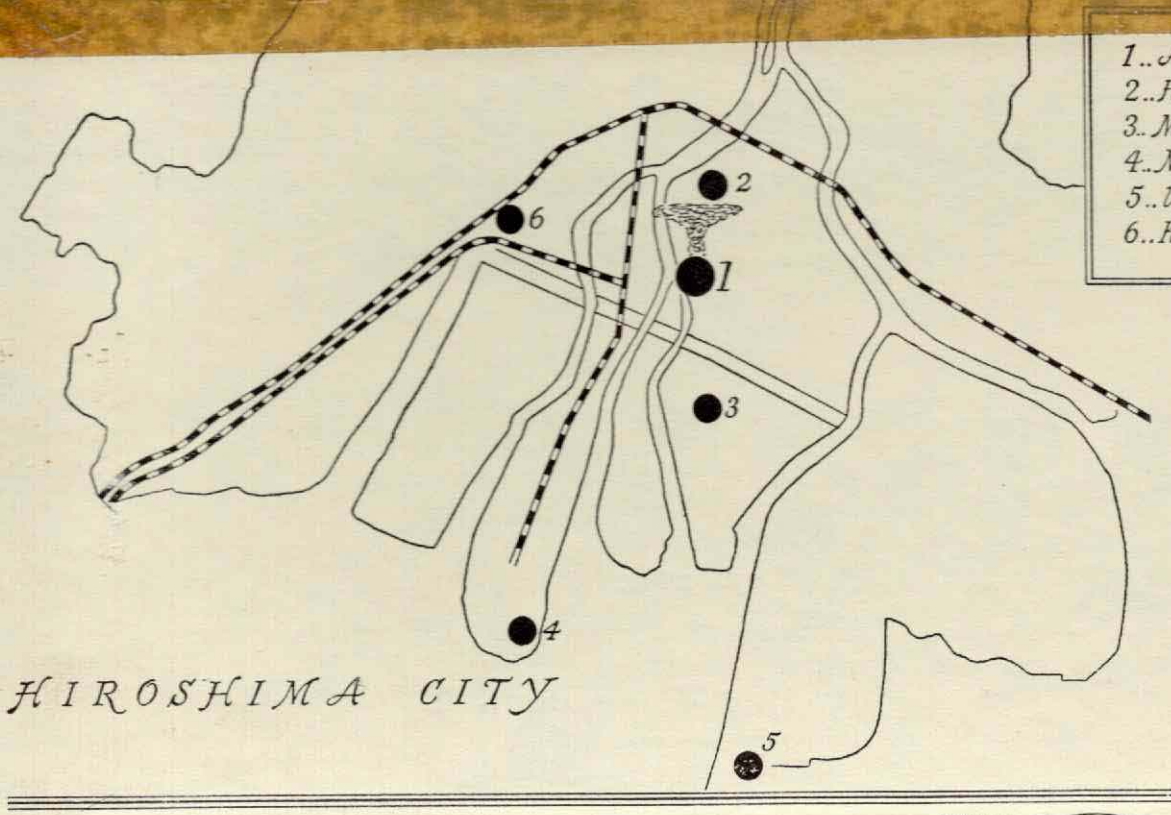

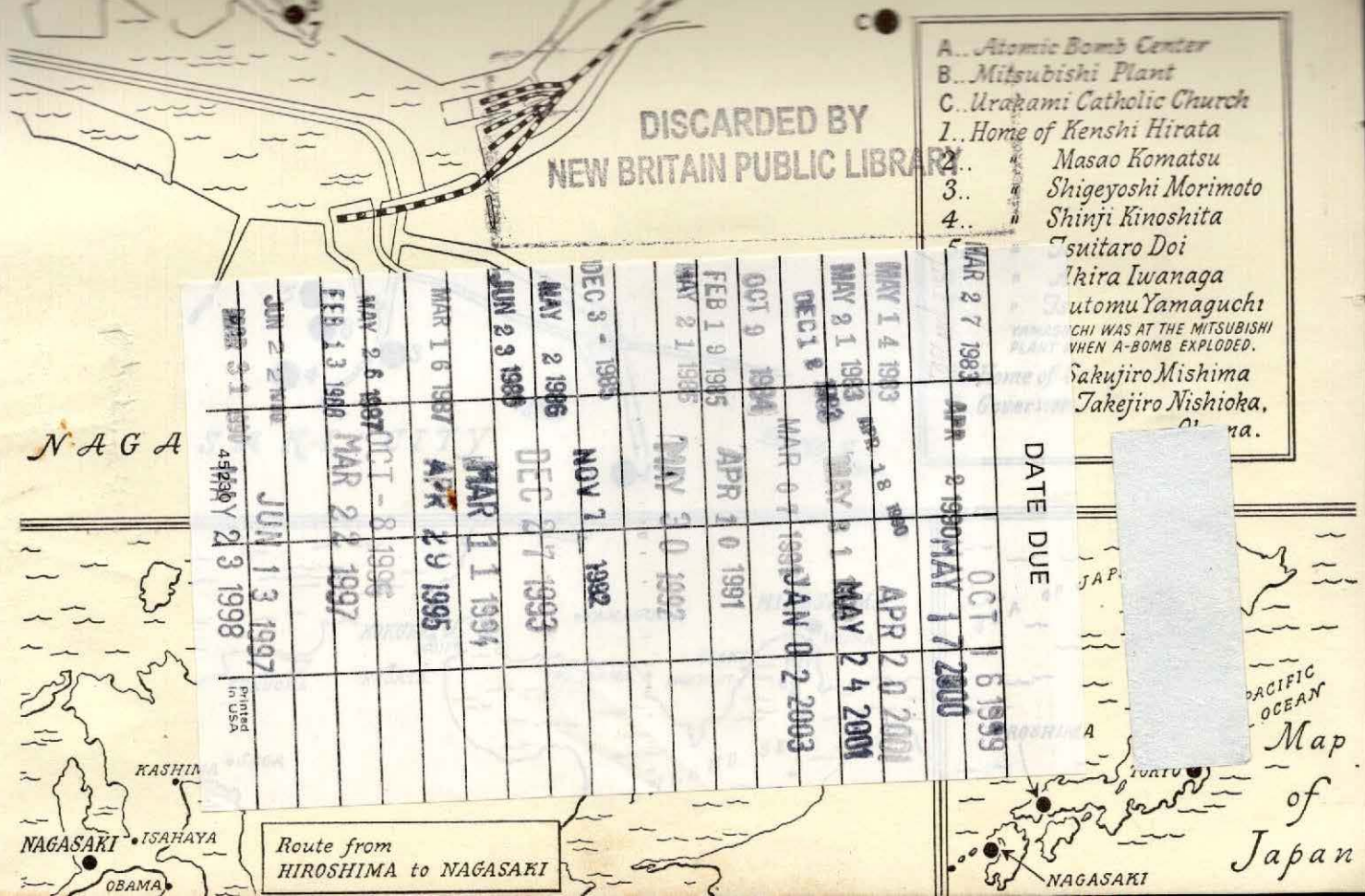

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Mitsubishi Plant
Ujina
Koi Station

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A

A.. Atomic Bomb Center
B.. Mitsubishi Plant
C.. Urakami Catholic Church
1.. Home of Kenshi Hirata
2.. " Masao Komatsu
3.. " Shigeyoshi Morimoto
4.. " Shinji Kinoshita
5.. " Tsuitaro Doi

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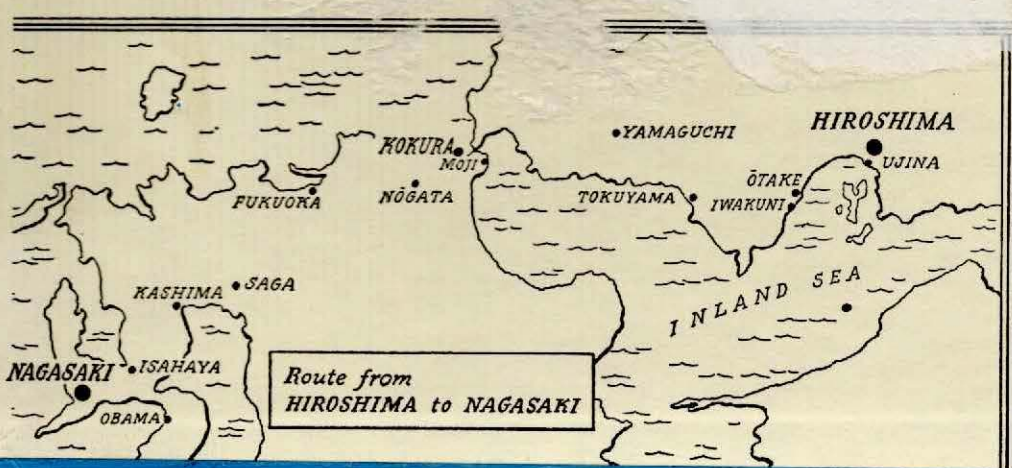
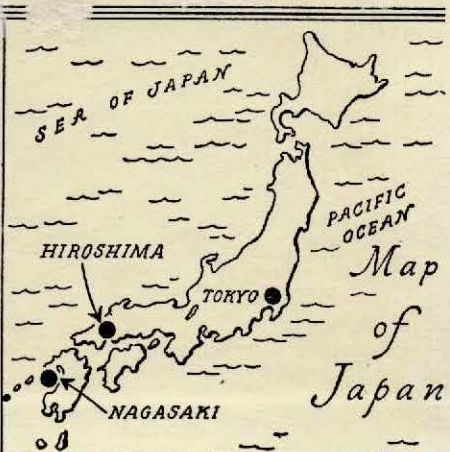
NAGASAKI





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Nine who survived Hiroshima and Nagasaki

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THE RAFT

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AS I SEE INDIA

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HIROSHIMA AND NAGASAKI

Nine who survived Hiroshima and Nagasaki

Personal Experiences of Nine Men Who Lived Through both Atomic Bombings

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For SUZY, JOAN and STEFFIE

ILLUSTRATIONS

Between pages 12 and 13

Nagasaki before and after the atomic bombing.

The nine survivors as they appear today.

The famous "Atomic Dome," originally the Industrial Exhibition Hall, deliberately preserved in destroyed state in Hiroshima.

THE NINE

Kenshi Hirata, twenty-six, accountant with the Mitsubishi Shipbuilding Company.

Tsutomu Yamaguchi, twenty-five, Mitsubishi ship designer.

Shigeyoshi Morimoto, forty-six, master maker of kites which Japan was using for barrage balloons.

Morimoto's three helpers: Tsuitaro Doi, forty-seven; Shinji Kinoshita, fifty; and Masao Komatsu, forty.

Takejiro Nishioka, fifty-five, publisher of the leading Nagasaki daily newspaper; now Governor of the Nagasaki Prefecture.

Akira Iwanaga, twenty-five, engineer for Mitsubishi.

Sakajiro Mishima, thirty-six, dockyard laborer.

(Ages as of August 6-9, 1945.)

FOREWORD

IN THIS account of the experiences of nine who survived the atomic bombing of Hiroshima and Nagasaki on August 6 and 9, 1945, the direct quotations of the survivors are exactly as taken down in interviews with them in Nagasaki, through the interpretation from Japanese to English by Jūnnosuke Ofusa, office manager and interpreter of the New York *Times* bureau in Tokyo. The words of Kenshi Hirata are taken directly from Mr. Ofusa's translation of Mr. Hirata's account written in Japanese as a personal memoir, and kindly lent for assistance in preparing this book. I am greatly indebted to Mr. Ofusa, not only for his excellent interpretation, but also for his painstaking detective work in searching out these survivors, who had scattered all over Nagasaki in the more than ten years since the end of the war. I am also indebted to Dr. Wayne Truax, former director of the Atomic Bomb Casualty Commission in Nagasaki, who first called my attention to the existence of double survivors, and to Ken Noble of the ABCC staff, who aided Mr. Ofusa and myself in gathering the material, also Dr. Robert H. Holmes, director of the ABCC, Hiroshima, and members of his staff.

Research with the Atomic Bomb Casualty Commission

and Japanese official and nonofficial sources indicated that there were at least nine other persons who, we have reason to believe, also survived both atomic bombs. With only their names and the addresses of ten years ago as clues, Mr. Ofusa and I made exhaustive (and exhausting) efforts to find these people, going from neighborhood to neighborhood in Nagasaki and its environs. We followed one lead to a precipitous island off the coast of Kyushu in the East China Sea, where the trail ended at a tiny police station perched high on a bluff. We succeeded in finding only two, and they could not be interviewed. We regret not having been able to complete the record of these remarkable experiences by relating the individual stories of the lost survivors, but since they lived in approximately the same places under the same conditions as some of the others, and made their way from Hiroshima to Nagasaki by the same route at about the same times, we have some basis for concluding that their possible contributions to this history have been covered, in essence, by the narratives of the other nine.

R. T.

Karuizawa, 1957.

Part one

(Official U.S. Air Force photos)

Nagasaki before and after the atomic bombing.

KENSHI HIRATA

TSUTOMU YAMAGUCHI

SHIGEYOSHI MORIMOTO

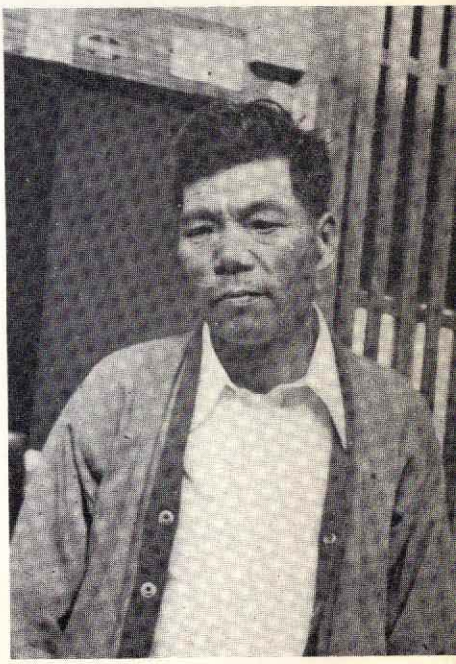
TSUITARO DOI

SHINJI KINOSHITA

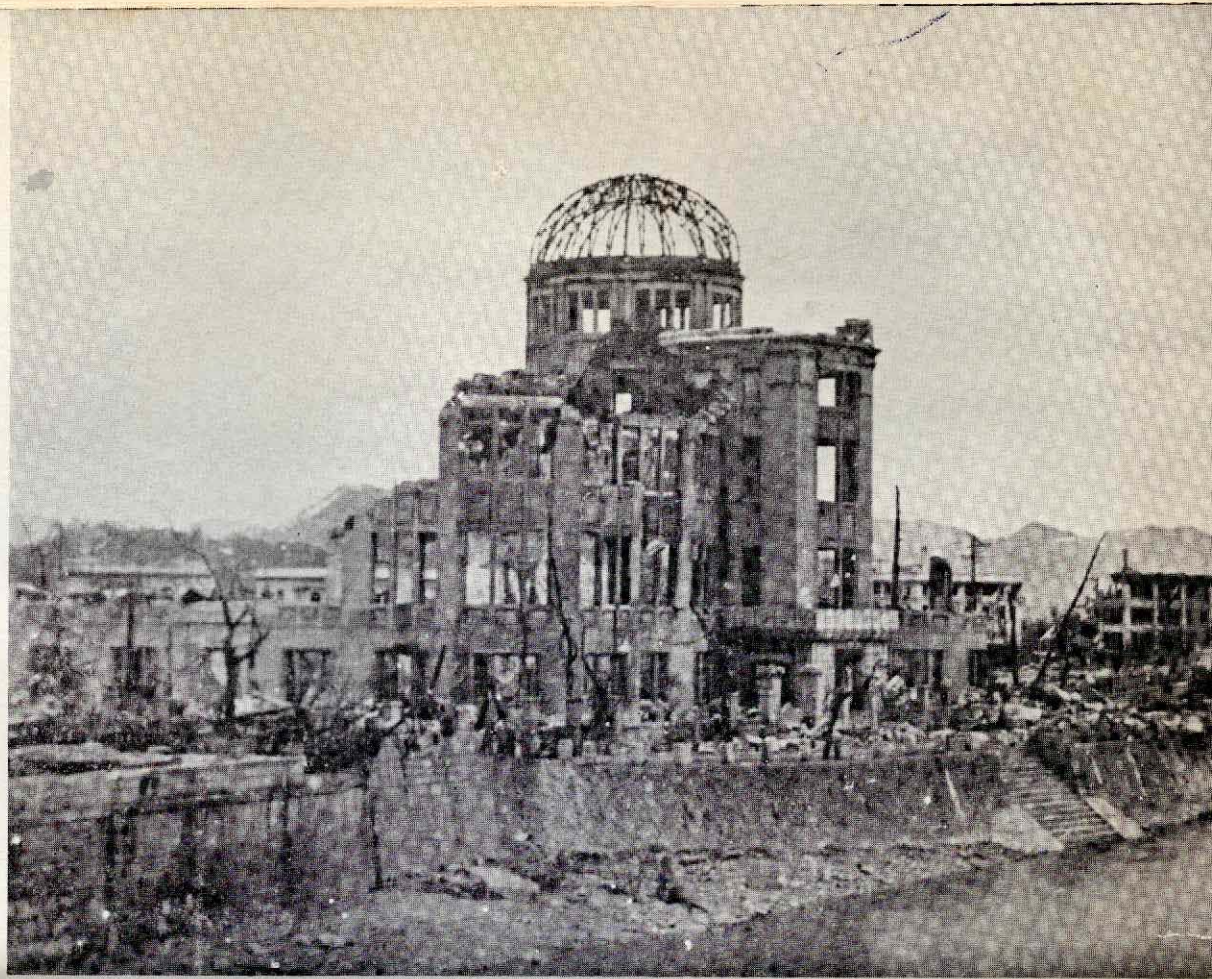
MASAO KOMATSU

TAKEJIRO NISHIOKA

AKIRA IWANAGA



SAKAJIRO MISHIMA



(Courtesy of Atomic Bomb Casualty Commission)

The famous "Atomic Dome," originally the Industrial Exhibition Hall, deliberately preserved in destroyed state in Hiroshima.

I

First there was the white light, so bright it seemed to burst inside the brain. Then, in seconds, came the frightful concussion and shock wave, with a roar as if the world were falling apart. People in the open felt a lash of heat, greater or less depending upon their distance from the blast. The nearer were burned to a crisp, or simply vanished, like the unknown man whose shadow, in a sitting posture, can be seen today etched into the concrete steps of the Sumitomo Bank Building.

It will never be known how many died in the instant that the atom split above Hiroshima, tearing the crowded city asunder with the most cataclysmic force in nature. By the middle of December, the Japanese authorities knew for a certainty that at least 64,000 were dead. Possibly somewhere between forty and fifty thousand of these perished in the terrible seconds when the sun seemed to burst, the heat of the sun's heart descended, and the deadly radiation flashed across the earth.

The survivors knew they had been attacked by a new kind of weapon. The ordinary citizen understood only that the Americans had found an explosive so powerful that

they could destroy a whole city with a single bomb. A few scientists in Kyoto, Tokyo and elsewhere realized at once the larger implication of the bomb, that man had discovered the key to unlock the power in the atom. The implications, they knew, were much greater than the achievement of a new plateau in the science of war, which in itself was the most significant advance since the invention of gunpowder by fellow Orientals.

Eyewitnesses to the destruction of Hiroshima, who fled to other cities, were questioned closely and often skeptically as to the effect of the fantastic new weapon. Among these were some who made their way, between August 7 and 9, from Hiroshima to Nagasaki.

One was Tsutomu Yamaguchi, a ship designer whose assignment to the Mitsubishi yard in Hiroshima was to have terminated the day after the bomb fell. When he returned to his home office in the Nagasaki plant on the morning of August 9, with his left arm and the left side of his face covered by bandages, his fellow workers crowded around him curiously to hear his firsthand account of the strange catastrophe that had overtaken Hiroshima.

When Yamaguchi said that Hiroshima had been wiped out by a single bomb, his superior scoffed.

"It is beyond common sense," he said. "You are an engineer—calculate it! How could one bomb turn out such huge energy as to destroy a whole city?" He hesitated, eying Yamaguchi's bandages. "You were injured, Mr. Yamaguchi," he added more gently. "Your brain was not working."

"As he was talking," Yamaguchi said later, "there came the flash! I jumped under a desk immediately, and my superior followed, or perhaps he simultaneously threw himself down. Desks and chairs tumbled . . . my bandages, which were very tight, were blown from my arm and face . . ." Yamaguchi is one of the nine who escaped death in Hiroshima, only to undergo a second atomic bombing in Nagasaki, who tell their stories here.

Talking to a reporter ten years later, Shigeyoshi Morimoto, the master kite maker, summed up the outlook of all nine:

"I am giving this account gladly," he said, "in the hope that it will help the world see that the atomic bomb should never be dropped again."

Hiroshima was destroyed by an entirely new type of explosive principle, the atomic as distinguished from the chemical. In a chemical explosion, the only kind the world had known heretofore, a dissolution of matter takes place so that atoms form a different arrangement within the molecule. This activity releases energy, which takes the form of heat. In an atomic explosion, the neutrons and electrons within the atom itself are disarranged. This process liberates prodigious energy, principally in the form of heat of an unimaginable intensity. Also, deadly radiation is emitted in the form of gamma rays and orphan neutrons. The latter is a new factor in bombing effect.

August 6, 1945, was a bright, warm morning, with only a few small, white clouds in a sky that was as blue as the

sparkling waters of the Inland Sea and the seven narrow fingers of the Ota River. Hiroshima—the name means "broad island"—lies on the flat area drained by the Ota delta. The city is actually six islands.

There are few photographs of Hiroshima as it was on that fateful morning, for the city had been designated as a military area, where photography was forbidden. In the north-central section the 300-year-old Hiroshima Castle, a building with uptilted eaves in classic medieval Japanese style, had been made an Army divisional headquarters, the heart of the command responsible for southern Japanese defenses. Besides shipyards and important war industries, the city contained at least thirty-five major military installations. When President Truman specified that a city of prime military importance be selected as the target for the first atomic bomb, Hiroshima was a logical choice. It had not been extensively bombed before, like nearby Kure, the big naval base, and other major Japanese cities.

The city was just settling to the day's work when the B-29 called *Enola Gay* droned overhead from Tinian Island in the Marianas. The troops were assembled in their parade area for morning drill. Office workers were at their desks already, and legions of industrial workers, including thousands of boys and girls of school age who had been mobilized for war work, had taken their allotted stations in shops, warehouses and construction sites. The appearance of a single American plane that morning caused no disruption in routine, for Hiroshima was accustomed to lone bombers coming over the city on missions elsewhere. Only

a few scattered bombs had ever fallen on Hiroshima. So there was no air-raid warning.

The bomb-bay doors in the *Enola Gay* opened wide, and a few who happened to be watching the plane saw an object fall out, followed by a parachute. At 8:15 A.M., as the bomb reached a point about 1,500 feet over the city in the vicinity of Hiroshima Castle, carefully devised forces inside the metal casing split an atom of uranium-235.

Instantly the blue sky was blanked out by the incandescent white light of the monstrous fireball. Scientists estimated that the ball was 250 feet in diameter and a hundred times as bright as the sun, with a heat of 1,000,000 degrees Centigrade, the same as the sun's interior. There was a roar of sound that is indescribable, for there is nothing with which it can be compared. Then came a wave of concussion that instantly leveled 6,820 buildings, and badly damaged 3,750 more. The earth for a mile around the blast center was bombarded with deadly gamma rays and neutrons and showered with radioactive fission products. The fireball sucked up millions of tons of dust and pulverized debris that quickly began to form the great, ugly mushroom cloud. The city fell under a dark pall, and a muddy rain began to fall.

"Simultaneously with the explosion, the heat rays kindled fires at various places all over the city, even as far as two and a half miles from the explosion center," says a Japanese account. "The wood and paper sliding doors, straw, electric poles, wooden houses, and clothes, particularly of darker colors, were some of the things that quickly caught fire

from the heat rays and thus constituted major sources of the subsequent conflagration. Remarkable instances of such ignition are seen in electric poles, wooden houses, railroad sleepers, posts and bamboo bushes, all of which show charred surfaces facing the explosion center."

In the city of approximately 255,000, more than half the population was instantly dead or incapacitated (dead about 64,000, injured 72,000). Casualties who escaped death in the blast were badly burned, or injured by falling timbers or flying glass. No city was ever so prostrate. All means of communication were gone. Seventy per cent of the fire-fighting equipment was destroyed, and 80 per cent of the fire-fighting personnel were killed, wounded, or otherwise unable to respond to the emergency. Concussion had broken the water mains, and pipes were melted in the incredible heat. Many burning buildings were inaccessible anyway, blocked off as they were by the debris of fallen structures.

Of forty-five hospitals, only three were left standing. Only twenty-eight out of 290 physicians in the city were unhurt, and 126 of the 1,780 nurses. Many injured doctors and nurses tried to help as best they could with the streams of wounded.

With all facilities virtually nonexistent, the city was at the mercy of the flames, and by two o'clock in the afternoon the six islands were a sea of fire. Terror was heightened by the flaming windstorm caused by convection as the air was drawn at thirty to forty miles an hour to the blazing center of the blast.

"The city burned for three more days," says the Japanese account, "and the embers went on smoldering for over a week."

One bomb had left Hiroshima a charred wasteland. Yet life went on.

II

KENSHI Hirata, lying on his back on the sandy beach, gazed meditatively at the countless glittering stars in the clear midsummer night sky over the Inland Sea. His samurai grandfather could not have dreamed of the situation in which the twenty-six-year-old Japanese found himself as he waited uneasily for the dawn of August 6, 1945. The long night had been a succession of air-raid alarms, and the last all-clear had just sounded. Hirata had led his crew of five out of the company shelter and lay down. He was anxious for day to come so he could return to his house and his new bride. They had been married just over two weeks.

Only one generation, his father's, lay between Kenshi Hirata and the "old" Japan, when the only wars the country knew were fought more or less man-to-man. There were no more samurai now. Hirata's grandfather had been among the last. He had been a feudal retainer of the Lord Arima of Karume, on the island of Kyushu, at the time of the imperial reforms that abolished his class, in the brilliant and progressive reign of Emperor Meiji. He was given a generous gift of money when the institution of samurai,

and with it his livelihood, was erased from Japanese society. Being entirely unable to cope with the strange new world that had replaced the old feudal pattern, he soon lost everything and became dependent upon his sons.

Kenshi Hirata's father fitted well into the modernization of Japan. He joined the great Mitsubishi shipbuilding combine, and eventually became director of the general affairs section. But maybe he was still part of the older Japan at heart, for ultimately he left his eminent position to devote himself to the study of classic calligraphy in the Chinese style. In this art he at length became a respected *sensei* (teacher), but his wife had to do neighbors' sewing to help support the family.

Kenshi represented still another step forward. By the time he earned his certificate from the Nagasaki College of Commerce, Japan was a world power and Kenshi was part of it. It wasn't long after he went to work for Mitsubishi Heavy Industries, in Nagasaki as an accountant, that he was drafted into the Army. He quickly became a noncommissioned officer, but contracted beriberi and was discharged before Japan attacked Pearl Harbor.

Now back with Mitsubishi at the Hiroshima dockyard, Kenshi was rising in the accounting section, and was also a squad commander in the dockyard branch of the ex-servicemen's association. He was afraid that very soon he was going to be called back to the Army, and it was for this reason that he had been anxious to get married. The urge was not connected with attachment for any particular girl; marriages were still commonly contracted in Japan by arrangement. Kenshi made several trips to his home in Naga-

saki, and after he had looked over a number of eligible young ladies, he settled on pretty, twenty-year-old Setsuko. They were married in Nagasaki in July, and had been back in Hiroshima just ten days. They were comfortably (and fortunately) settled in a company-owned house, and were as happy as newlyweds anywhere (it is a Western idea that you have to fall in love before marriage; Orientals marry first, and then fall in love, or so it used to be).

Kenshi recalled with pleasure their honeymoon excursion to Miyajima, the "Shrine Island," one of the most famous beauty spots of the Inland Sea, only an hour by train and ferryboat from Hiroshima. Miyajima, a small island covered with shrines and charming little hotels, is both a religious and a pleasure resort. It is noted for the great torii (temple gate) that stands in the water offshore in the pellucid Inland Sea. In 1945 the hotels were jammed with young students, not the gay excursionists that one sees today but labor conscripts mobilized by the government for defense industries. However, Hirata was acquainted with the proprietor of an inn who was able to give the young couple a room. They set off happily to visit the principal sight of the island, the great Miyajima Shrine.

"There is a strange belief in connection with the Miyajima Shrine," Kenshi wrote later. "It is dedicated to a goddess who, it is said, becomes jealous if a newly-married husband and wife visit the shrine together. If the taboo is violated, they say, the wife will shortly die. But my friend, the innkeeper, scoffed at this and said it was pure superstition. Since we had come all the way to Miyajima together,

he advised us to go at once to the famous shrine. So we did. But since then I have repented of it many times."

The full personal meaning of war had struck Kenshi Hirata one night in Osaka. He had been sent to this industrial capital of Japan on business, which he completed in two days. On the third morning he proceeded to Kobe, and that night Osaka was heavily bombed. Hirata passed through Osaka again the following day and saw that the hotel where he had spent two nights, near the railroad station, had been completely destroyed by a bomb the night after he left. I might easily have stayed in Osaka one more night, and I'd be dead now, he reflected, with a shrinking feeling in his thin stomach.

On August 5, young Hirata was assigned to night duty at the Hiroshima dockyard. The recurring air-raid alarm that disturbed his work he regarded merely as a nuisance; planes never dropped bombs on Hiroshima. But he dutifully herded his men into the shelter, as was required, and directed the transfer of important papers from the office to a fireproof safe in a small building that had been erected on the beach for this purpose. Every visitor to Japan, in the immediate postwar days before reconstruction, remarked upon the thousands of rusted and flame-blackened safes that stood among the bomb debris wherever one looked.

As day broke, Hirata supervised the transfer of the papers from the safe back to the office. He was finishing this task at 8:15. His helpers were ahead, inside the office. Hirata was walking down the hall.

"As I was about to enter the office," he said later, "I saw

through an open window what looked like a golden lightning flash that had blown up out of the earth. The weird light was everywhere. I immediately thought of an air-raid, and hurled myself prostrate in the passage."

Hirata's quick action probably saved him serious injury, if not his life. There were a few seconds, perhaps ten, between the flash and the concussion. Also, without knowing it, he was taking the only course open to him at that moment to avoid radiation as much as possible. But Hirata was merely acting partly by instinct and partly as a result of the intensive drilling in air-raid precautions given every Japanese.

The seconds between the unearthly flash that so upset Hirata, and the roar and shock that he knew must come, seemed like long minutes to the prostrate accountant. Thinking that the bomb must have fallen just outside, he expected death instantly. He had time, he remembers, to press his face into his arms and begin to pray.

Then the building shook and was engulfed in frightful vibration and noise. Hirata, pressing himself against the floor, stole one frightened peek at the ceiling above him; he was afraid it was going to fall. Shuddering, he buried his face once more.

After a moment, when the ceiling didn't fall, Hirata said to himself with relief, "The bombs did not hit this place, after all." He lifted his head, and his glance into the office turned into a horrified stare.

Everyone in the crowded room was covered with blood. The young office girls were screaming, "Mother, Mother!" A girl who worked by a window, whom Hirata had noticed

as having an unusually buxom figure for a Japanese, had caught the full force of the flying glass. Her blouse was ripped off, and her two large breasts were split open, as Hirata said, "like ripe pomegranates."

This was the effect a little over two miles from the blast, by what is now called a "Model T" bomb.

Hirata did not realize the full extent of the damage to the Mitsubishi works until he went outside the building. His section chief and sub-chief were away that day, so it was Hirata's responsibility, as senior man present, to oversee emergency first aid to the injured in his division, and to direct those who could walk to the company's medical clinic.

On the way to the clinic, he said, he saw many fellow workers lying on the ground, motionless. They were either dead or seriously injured. The building containing his office had not been badly broken up, except the glass windows and the doors, but it leaned to one side, as though the supports had been weakened by an earthquake. In the distance, toward the city, there were continual dull explosions, and fires could be seen shooting skyward all over the landscape.

He began to worry about his wife.

III

It was with elation that Tsutomu Yamaguchi rose early on August 6. This was to be his last day in Hiroshima; tomorrow he would be back with his wife and child in Nagasaki. His three-month assignment at the Hiroshima yard of the Mitsubishi shipbuilding company, where he had been sent from company headquarters to design a new 5,000-ton tanker, was now completed. Today he planned to finish up his affairs at the office, and tomorrow morning be on a train for Nagasaki.

Yamaguchi lived in a boarding house owned by the company. He said good-by to the proprietor and his wife, an aged couple, put on his shoes in high spirits, and took a bus. He was getting off the bus when he realized, with annoyance, that he had forgotten his "*inkan*," or personal seal. A Japanese office worker can't move without his *inkan;* dipped in red ink paste, it has to be affixed to every document that comes beneath his hand, taking the place of a handwritten signature or initials. Frowning, Yamaguchi returned to the boarding house, took off his shoes at the entrance, and accepted the elderly proprietor's invitation to a cup of tea.

Shod again—Japanese spend more time in a day taking off and putting on shoes than a Westerner does in shaving—Yamaguchi was again on his way to the office, this time by streetcar. He noted that it was another fine day, already becoming hot. As he left the streetcar to finish his journey afoot he removed his jacket and rolled up his shirt sleeves. This he later regretted.

Yamaguchi had crossed a short bridge across a small creek and was walking along an empty road bordered by potato patches when he saw a woman coming toward him, wearing the black *mompé*—a shapeless dark uniform with gathered trousers—that was the universal garb of Japanese women during the austere war years. As they came abreast, the silence was broken by the faint drone of an airplane. Yamaguchi and the woman stopped and looked up at the blue sky.

It was a bomber, Yamaguchi saw, flying at high altitude. As he watched, a small object dropped from the belly of the plane. Above the falling speck a white dot appeared. A parachute, Yamaguchi thought.

"Suddenly there was a flash like the lighting of a huge magnesium flare," Yamaguchi recalls.

The young ship designer was so well drilled in air-raid precautions technique that he reacted automatically. He flung his hands to his head, covering his eyes with his fingers and stopping his ears with his two thumbs. Simultaneously he dropped to the ground, face down. But the woman in the black *mompé*, reacting in panic, turned and ran into the potato field.

"As I prostrated myself, there came a terrific explosion,"

Yamaguchi said later. The shattering blast was followed by a convulsion of the earth that lifted the muscular young man about two feet from the ground. He felt "a strong wind" pass between his body and the roadbed.

Yamaguchi did not know whether it was the initial shock that had hurled him into the air, or the blow as he fell back to the hard earth, that dazed him. He is sure that he felt nothing as his body struck the ground.

"How long I lay in the road, dazed, I don't know," he said. "But when I opened my eyes, it was so dark all around me that I couldn't see a thing. It was as if it had suddenly become midnight in the heat of the day. When my eyes became adjusted to the darkness, I perceived that I was enveloped in an endless cloud of dust so thick it was black."

Then the gale, as air rushed into the vacuum created by the fireball, whipped around Yamaguchi's face and quickly dispersed the pall of dust so that he could see dimly, as in a cloudy twilight.

"As the dust blew away and my surroundings became visible, I saw what seemed to be thousands of tiny, flickering lamps all over the street and in the fields. They were little circles of flame, each about the size of a doughnut. Myriads of them were hanging on the leaves of the potato plants.

"I couldn't see the woman anywhere."

As Yamaguchi sat up, slowly recovering from his daze and bewildered by the inexplicable scene around him, he was suddenly conscious of heat. His entire body throbbed with it.

The pain was sharp on the left side of his face and in his left arm. He discovered that the exposed skin on the left side of his face and on his bare left arm, the side toward the explosion, was severely burned.

Later, Yamaguchi calculated that his distance from the center of the blast, when he fell, was about a mile and a fifth. At half this distance, the heat emanating from the fireball had melted the granite on building surfaces. It can be surmised that the woman in the black *mompé*, who was upright and therefore had exposed her entire body to the heat rays, and who in addition wore a heat-absorbent color, most probably did not survive.

"I looked toward the city and saw a huge, mushroom-shaped cloud rising high into the sky. It was an immense, evil-looking pillar. It seemed to be reflecting every shade in the spectrum, turning first one color and then another."

As Yamaguchi contemplated the strange cloud, he began to feel faint. From this and his subsequent symptoms, it seems likely that he had suffered a heavy dose of radiation. There flashed into his still-dazed mind a picture of his wife and child, and he felt suddenly a desperate urge to go to them in Nagasaki, even if he had to walk all the way.

Yamaguchi's next feeling, he recalls, was one of intense uneasiness. "I sensed," he said, "that for some reason, which I didn't analyze, it would be gravely dangerous for me to remain where I was on the road. Feeling terribly weak, and suffering intense pain from the deep burns on my face and arm, I stumbled into the potato field. There was a big tree out in the field, and I headed for that. Sometimes I could only crawl, creeping from bush to bush.

"When I finally reached the tree, I had no more strength to go on. And I had acquired a terrible thirst."

As he rested beneath the tree, Yamaguchi examined the changed landscape. Most of the scattered houses in the vicinity had collapsed as if they had been struck a sharp blow with an immense hammer. As he gazed at the shattered remains of the buildings, flames began to spurt from the fallen timbers.

Not far from the tree stood a small factory of the kind found in great numbers throughout Japan during the war years, when virtually the entire population was engaged in producing for military needs. The door facing Yamaguchi opened, and five boys, fifteen or sixteen years old, came running out. They were unclothed except for torn underpants, and they were covered with blood. Yamaguchi saw that they were crying. He forgot his own discomfort, and motioned to the boys to come to the tree. The air had turned intensely hot.

"As the boys came near, I saw that they were pale, and shaking severely," he said. "Sobbing and terrified, they told me that the small factory had taken a 'direct bomb hit,' and that everyone else inside was dead.

"I had never seen such a horrifying sight as those five shivering boys. Blood was pouring in streams from deep cuts all over their bodies, mingling with their perspiration, and their skin was burned deep red, like the color of cooked lobsters. At first it seemed, strangely, that their burned and lacerated backs and chests were growing green grass! Then I saw that hundreds of blades of sharp grass had been driven deep into their flesh, evidently by the force of the blast."

The only thing Yamaguchi could think of to help the boys was to advise them to pull the blades of grass from each other's flesh. More than their pain, they were obsessed with thirst, as was Yamaguchi himself.

"There was a brook nearby," said Yamaguchi, "running clear water, but I thought it might somehow be dangerous to drink the water, and I tried to persuade the boys to stay away from it. But as soon as they noticed the brook they rushed toward it. I don't know what became of them afterward."

Alone again, Yamaguchi once more experienced a strong feeling of unexplainable fear that told him to leave the place where he was. Some instinct urged him that the open space was dangerous. Looking about, he espied an empty rifle range used by the Army, about 300 yards from the tree where he sat. At the end of the range was a man-made trench, about six feet deep and 200 feet long, where the targets were handled.

With an impulse to take shelter, Yamaguchi got to his feet, stumbled painfully across the smoking potato field, and lowered himself into the trench.

As he slid inside, he saw that he was not alone. A woman, naked, was lying on the ground, moaning faintly.

"As I approached her, I saw that she had severe burns all over, and that her skin was the same deep-red lobster color as the boys'. When she saw me she tried to rise, but she was too weak. She mumbled, 'Help me!' I noted that she was a Korean.

"When I bent over her to see if there was anything I could do, she said piteously, 'Am I going to die?' All I

could do was assure her that she was going to be all right. But as I looked at her, baked all over as she was, I was sure that her condition was hopeless.

" 'Stay in the shade of the trench,' I told her. 'Don't let the sun touch your skin.' "

Now Yamaguchi was joined in the trench by two young men in the black uniforms of students. They sat down beside him. He saw, wonderingly, that they had not been hurt.

"You've got a serious burn, sir," one of the students said to the ship designer. Touching his own face, Yamaguchi could tell that his skin was highly inflamed; it seemed as if it was about to peel off. His burned left arm was black, and swelling.

"One of the boys brought from his bag a small glass jar of medicine for burns, that he said his mother had put in the bag as he was leaving home for his work in the factory that morning. He offered the medicine to me and I refused, but he insisted on opening the jar and anointing my burned skin. It felt soothing, like palm oil. I never learned that boy's name, but I feel grateful to him to this day," Yamaguchi said, relating the story ten years later.

It was now nearly noon, and Yamaguchi thought he had better continue to his office, where he expected his fellow workers might be worried about him. On the way, he passed a number of dead bodies along the roadside.

Where once had been the building housing the design section of the Mitsubishi plant, Yamaguchi found only a pile of collapsed timbers. And these had begun to burn. The beach, where the temporary structure had stood, was

dotted with dead bodies of Korean laborers. Yamaguchi learned that two of his fellow workers in the design section had been killed. The survivors crowded around and embraced him in turn, then took him to the company aid station.

"I found the aid station surrounded by dead bodies, or I should say 'charred' bodies, for I had no way of telling whether the unfortunate people were actually alive or dead. They were all black. I think some were alive, for I saw slight movements of hands and feet. The medical personnel were plastering the bodies with a white ointment, turning the skin from black to white.

"They put the white ointment on my burned arm and face, and wound bandages over it, and I returned to my office mates, who were standing around in a pine grove. There I was handed an emergency ration of two small biscuits and some water. I was very hungry, but after swallowing a bit of the biscuit I immediately vomited. After that I only drank the water.

"Meanwhile, I could see Hiroshima, two miles away, burning fiercely. Many of the office girls were crying because they could not go home."

At the accounting office, Kenshi Hirata put his biscuit ration in his cloth "emergency bag," and decided to take it to his wife. In the hours since the blast, there had been much confused discussion of the bomb. They all knew now that it was some kind of super-explosive, because it was obvious, from the absence of a crater, that nothing had fallen anywhere near the Mitsubishi plant. Yet the injuries

and damage were as if a direct hit had been scored nearby. A rumor spread that some of the leaflets dropped by the Americans previously had warned of a special attack on Hiroshima August 6, but no one had actually seen one of these.

Reflecting on this, Hirata set out to walk home.

"There was not a house standing as far as I could see," he said later. "Everything had burned down, or collapsed in the blast. Although I knew the city well, it was actually difficult to find my way, for all the familiar landmarks were gone, and the streets I had often walked were now buried in debris and ashes. It was not like walking in streets at all; it was more like crossing a big burnt field."

Hirata noticed, with a little shock, that there wasn't a living being in sight. "It was as if the people who had lived in this uncanny city had been reduced to ashes with their houses," he said.

As he moved slowly through the smoking waste, he soon came upon the first ghastly dead.

"The first was a little boy," he recalls. "He was completely naked, his skin was all peeled off as if he had been flayed, and the nails were falling from the ends of his fingers. His flesh was all deep red. When I first saw him I wasn't sure that I was looking at a human being."

There was the same eerie quality about other bodies, lying twisted and still in the wreckage, "looking neither alive nor dead."

Hirata was accustomed to walking from his office to his home in about fifty minutes, but today it took him over an hour and a half to pick his way through the jumbled

wreckage of the burned city. He was thinking unceasingly of his wife, Setsuko, and wondering about the fate of their house, a pretty two-storied structure surrounded by a tiled wall. He noticed that perspiration was flowing down his body "like a waterfall," yet somehow he did not feel warm.

Suddenly he stopped. At this spot, he thought he should be at his house. But there was no house there, only a smoking field of ash and embers. Dirty water gushed from a pipe broken off at the ground. Poking around in the ashes, for he was sure this was the site of his house, he found remnants of an iron stove that had heated the bath water for the deep wooden tub, and some broken pieces of tile. Then he discovered some twisted metal that looked as if it might be the remains of kitchen utensils. Now he knew that this was where his house had been. Setsuko, he thought, must have gone to the air-raid shelter.

IV

TOWARD the end of the war, when American carrier planes were wreaking havoc among Japanese convoys, Imperial Headquarters hit upon the idea of protecting the ships with kites. It is said that General Tomoyuki Yamashita, the "Tiger of Malaya," since hanged for war crimes in the Philippines, suggested the plan, an adaptation of the "balloon barrage." As the ships moved out of port, each would be covered by a canopy of ten to twenty big kites, flown on strong cords at 1500 feet over the deck. A small bomb would be attached to each kite. The Japanese hoped that U. S. carrier fighter planes, swooping low to torpedo and strafe the ships, would hit the kites and be destroyed by the grenade-like bombs.

Kite flying is a favorite sport in Japan, and the kite makers of Nagasaki are considered the best in the country. Every year in March, the towering hills around Nagasaki are the scene of the famous kite flying contests, in which the participants try to cut loose each other's kites by bringing together the strings, which are coated with ground glass. Controlling a Japanese kite takes more skill than the American variety requires. The ordinary Japanese fighting kite is

about three feet long and three and a half feet wide. The frame consists of two crossed thin sticks of pliant bamboo. The string is attached through a hole in the middle toward the top, where the sticks join. The Japanese kite flyer does not run with the kite to get it aloft but flips it into the wind with a flirt of the hand. Since there is no tail to give the kite stability in the air, keeping it up is a matter of deft manipulation of the string, a very tricky business.

Shigeyoshi Morimoto was considered one of the best kite makers in Nagasaki, which means the best in Japan. When the program of protecting ship convoys by kites was adopted about four months before the atomic bomb was dropped, Morimoto was sent to Hiroshima to make the kites. He was accompanied by three helpers, Shinji Kinoshita, Masao Komatsu, and Tsuitaro Doi. All four saw both atomic bombs.

Early on the morning of August 6, Morimoto assigned his three assistants their work for the day, then left his small hotel and went into the city to purchase paper, string, paste and bamboo. Before making his tour of the shops for these materials, he stopped at the home of a cousin and his son. As they were chatting, the atomic bomb exploded almost directly above them.

About ten years and seven months later, Morimoto interrupted his kite making—during the busy March season—to tell about that day in a long conversation at his Nagasaki house.

"There was something like a lightning flash, and along with the flash the house collapsed and we were pinned beneath the fallen ceiling and roof," he said. "When I

opened my eyes it was pitch dark, because of the dust; I couldn't see any thing at all. In about ten minutes the dust slowly began to clear, and I saw that all three of us were alive—unhurt, in fact, except for bruises from the falling timbers. I found later that we were the only persons who were uninjured in that entire district, because we were completely covered by the fallen roof and ceiling of the ruined house, which kept us from being exposed to that horrible blast.

"Slowly, we managed to work our way out of the debris that pinned us down. As I stood up and looked around, I saw with amazement that all the houses as far as I could see had been completely destroyed. My first thought was to wonder what it was that had caused such serious destruction.

"My next reaction was that this catastrophe must be a punishment of God on Japan!

"There were numberless injured persons all around me, lying on the ground, some held down by fallen timbers, all screaming and shouting for help. I saw that they were all still alive, but horribly injured. Many looked like ghosts, with the skin peeled off their faces and hanging down over their shoulders like thin silk pennants. All those who had been facing in the direction of the blast had their exposed skin torn off in a thick layer which had blown back. The sight left me numb with horror.

"I wondered if my own skin was all right. I pinched my arms, chest and legs, over and over, and as I felt pain at each pinch, I concluded with great relief that I had not been burned.

"Some children screamed at me, saying that their mother was under a fallen house, and asking my help. Their appeals made no impression on me—I don't know why, but I had no intention of extending any help. Instead, I simply set off aimlessly, with little or no idea where I was going or what I intended to do. I can only remember it as I would a bad dream, as if it never really happened and my actions could not be explained.

"It seems I prowled endlessly through the ruin of the city, half-oblivious to the dead and dying all around me. Eventually I came upon an Army officer, who seemed to be unhurt. I asked him, what was the cause of this terrific destruction. He replied, 'It was done by some new type of bomb used by the enemy!'

"I continued toward Ujina, where my hotel was. I noticed with surprise that I had no shoes, but was walking in my socks. I passed innumerable injured, all groaning in pain. Many had their clothes blown off, and were indescribably burned. I don't think there would be any appropriate words in any language that would accurately describe the dreadful, pitiful sight of these injured persons!

"I don't want to see such a sight again! And I hope not! The terrible memory of it comes back to me from time to time, even after the lapse of ten years, like a recurring nightmare!"

For some time Morimoto stood on the bank of the Ota River, looking at the debris of houses that had been blown into the stream. Many corpses, either burned to death or drowned, floated in the water. At this point, events took on a misty quality for the kite maker, and he remembers

only a sense of horror piled upon horror as he made his way slowly through the city, often having to wait for flames to subside in a burning house before he could proceed.

"Many injured people were being transported to Ujina by the soldiers," he recalled, "but when they got there, there was little medical treatment to be had, for Hiroshima was very short of medicine and facilities for treatment. Some of them died immediately, but most were dead in two or three days at the longest.

"The more I saw of the city and the people, the more I realized it was a miracle that I hadn't been burned to death. In the neighborhood where I was caught in the blast, even the trees had burst into flame, so it was no wonder that human flesh was baked through in an instant!"

(He interjected: "I wish that some people of America could have seen that sight of the ruin of Hiroshima! Perhaps the scientists who invented that bomb could not have known its horrible effect on human beings as we know it, although we don't know anything about the nature of the bomb!")

Tsuitaro Doi, assistant kite maker, was a thin, bespectacled, prematurely white-haired man of forty-seven. He had been feeling unwell for more than a week, and when he awoke on August 6 he decided to stay in bed. He had an upstairs room in the hotel at Ujina on the waterfront, where the four kite makers stayed. It was a typical small Japanese inn, with floors of tatami, or rush matting. At night the maid spread the rolled-up *futon*, a thin mattress with bedclothing, on the floor for sleeping. Doi was lying on his

futon, gazing through the open, slatted window, when the sky was lit by the unearthly flash of the atomic bomb.

"The flash was immediately followed by the blast, and then the room was filled with a gust of heated air," Doi said. "I quickly rolled over and covered my head with the *futon*, as the glass and paper doors blew in. Trembling in the *futon*, I expected death at any moment!

"After the hotel had stopped shaking, I cautiously poked my head from under my *futon* and looked around, slowly. The floor of the room and my *futon* were covered with tiny bits of shattered glass. I noticed that I had a slight cut on one arm, and another on the leg, where I wasn't covered. I got up and looked outside and saw a huge cloud of dark smoke, filled with glints of beautiful colors. I figured that a bomb must have hit some huge gas tank, causing this immense explosion. Knowing nothing else to do, I just looked at the cloud for about an hour.

"Then trucks began arriving, bringing injured from the city. I thought these people must have been close to the exploding gas tank, for they all looked badly hurt.

"Soon the road was filled with streams of men, women and children, many of them burned black, some with their skin peeled completely off. I came downstairs, to see if I could help. The wounded were begging for water. One girl, who was seriously burned, drank some water and died immediately afterward, in less than a minute.

"There were a lot of school girls in the crowd of wounded. I asked some of them what they were doing in Hiroshima, and they said they were students who had been mobilized by the Army to pull down houses so as to pre-

vent the spread of fire in case of an air raid. In this way, many open spaces had been created in the crowded districts. One girl said that all those who had been on the roofs, tearing off tiles, had been blown to the ground by the blast and had got terrible burns."

Doi became concerned about his friends, and decided to go to the warehouse where the kite-making factory had been set up, to see how they were. He set out on foot, through roads jammed with panic-stricken injured.

"Many of them were completely naked, others were clothed in torn rags," he said. "Some had their whole faces burned black, like masks with no eyes or mouths, others had only half a face. . . .

"Finally I reached the warehouse, to find it filled with injured. I looked in another warehouse, but still couldn't find my friends. There were fifteen or sixteen Army officers there, all drinking sake from big bottles. I was very angry at seeing this, but I continued to search for my friends, and finally found them in an air-raid shelter."

Shinji Kinoshita and Masao Komatsu, the other two kite makers in Morimoto's crew, had gone to the warehouse as usual that morning. They were resting and having a smoke together when they heard the roar of an approaching airplane. There were two entrances to the warehouse building, so Kinoshita ran to one and Komatsu to the other, to look for the plane. Komatsu scanned the sky over the city, while Kinoshita watched over the sea.

"Suddenly there was a great flash of light, and then a gigantic cloud formed like a mushroom on a huge pillar," Komatsu said. The cloud glittered underneath with five or

six different bright colors, and I called Kinoshita to see this grand sight.

"Kinoshita rushed toward me. I don't know how long we had been looking at the colors in the cloud, when our faces were struck by a wave of very hot air. We turned to go back into the warehouse, but then there was a deafening blast!

"I was struck by a falling beam, and Kinoshita was hit by several slabs from the roof. He fell and lay still."

Kinoshita: "When I raised my head after a moment, I couldn't see anything because of the blood in my eyes from a wound on my head, made by the falling slate. I asked Komatsu to look at my injury and see how it was."

Komatsu: "I examined his head and told him that the injury was not serious at all. But I wiped off the blood, and took him to a nearby Army emergency aid station. There we found a number of people with bad injuries. Many of them were young boys and girls who had been mobilized from the schools for the munition industry."

Kinoshita: "When I saw these children with really serious injuries, I felt that my wound was very slight, but I got temporary treatment from the doctor at the aid station. When I had been bandaged, Komatsu and I went back to the warehouse and took refuge in the air-raid shelter. We stayed there till about noon, talking and wondering what kind of bomb it was that caused such terrific damage.

"At that time we thought the bomb must have fallen either on one of the warehouses, or nearby.

"About noon, Mr. Doi came in. He told us to come out of the shelter and look at the injured who had been brought

to the warehouse from the city by trucks. It was only when we saw these that we realized that the bomb had not dropped among the warehouses alone, but had done its work all over the city. We believed the flash we saw must have been responsible for this destruction and the serious injuries to the people.

"The warehouse had a floor space of 1,000 *tsubo* (36,000 square feet), and all the space was occupied by injured. There was no treatment for them, they were just left there. Some were crying for water, some just groaning in pain. Some had their skin completely peeled off, on others it hung down in long, wide shreds from their arms. We were unable to give them any help.

"I asked some of them how they had been injured. They all said, 'I don't know myself!'

"Judging by the condition of these cases, we decided that Morimoto must have been killed in Hiroshima. We waited till about four o'clock, then decided to go back to our hotel."

As Doi, Komatsu and Kinoshita reached the hotel, Morimoto also arrived, his feet bare and his clothing and body covered with ash and dust. The four friends embraced each other in joy that they were all safe.

Although the hotel of the kite makers was about two miles from the center of the blast, the building was badly battered. The kite makers spent the remaining daylight clearing fallen boards and timbers and sweeping away broken glass and other debris, so as to make the place livable for the night.

It was a sleepless night, full of excitement, confusion

and rumor. Somehow the story got around that the Americans were to follow the morning's bombing with an incendiary raid after dark. Some claimed to have information that the city was to be hit with another "super-bomb." By now all Hiroshima knew that the destruction in the morning was not caused by any ordinary weapon, although they had as yet no idea that it was an atomic bomb.

And all through the night the city burned.

V

IN THE last months of the war, when United States bombing attacks were intensified all over Japan, editors of the western Japanese newspapers discussed emergency measures which would enable them to continue publication if their plants were destroyed. It was decided that, in the final stringency, the newspapers would have to go, literally, "underground" —that is, set up rotary presses and other mechanical facilities in a cave shelter. Nagasaki was chosen as the most favorable place for a bombed-out newspaper to transfer its operations, and it was decided that the situation demanded the construction of such an underground plant as soon as possible, preferably within a month.

But at that time both labor and materials were desperately short. The editors agreed that the best labor source would be convicts, particularly as the prison population included many experienced coal miners. The use of convicts required approval of the Ministry of Justice, which had jurisdiction over all prisons. Once the Justice Ministry was convinced of the newspapers' need for convict labor, the cooperation of various prefectural governors would be

necessary, and for this the editors' association would have to obtain an order from the Home Ministry.

Takejiro Nishioka, proprietor of the leading Nagasaki daily, *Minyu (People)*, was elected to go to Tokyo to enlist the help of the two ministers.

Nishioka, a short, stocky man with a small mustache, was a politically powerful figure in Nagasaki, destined after the war to become prefectural governor. A cultured, courtly man, he was then, as now, highly esteemed and respected. Going to Tokyo, he had no difficulty in obtaining the consent of the Home and Justice Ministers to the editors' plan. But now he realized that prisoners would not be enough; it would be necessary also to put Army labor battalions to work on the job if the huge air-raid shelter was to be completed in a month. For this he needed the cooperation of one Lt. Gen. Isamu Yokoyama, commanding general of the Army forces in the Kyushu region. (General Yokoyama was later convicted of war crimes against captured American flyers and executed.)

General Yokayama happened not to be among Nishioka's wide circle of acquaintance among high military officers, but a relative of the general's, Field Marshal Shunroku Hata, Army commander over all southwestern Japan, was an intimate friend of the publisher. Nishioka decided that the best course would be to get an introduction to Yokoyama from Hata—an example, incidentally, of the best way to get action in official circles in Japan, still true today.

Field Marshal Hata's headquarters were in Hiroshima. There was no space available on the southbound trains from Tokyo, but Nishioka, with his influential connections, was

able to get on a military train that would arrive at Hiroshima station at 8 A.M. August 6.

The Japanese railway system is justly famous for punctuality; even during the war the trains were usually on time to the minute, unless halted by an air raid, as frequently happened in 1945. Such a raid held up the military train that Nishioka was riding by twenty-five minutes, so that at 8:15 A.M. on August 6 it was just pulling into Kaidaichi, on the outskirts of Hiroshima.

After the strange "lightning flash," as it seemed to Nishioka, the soldiers ordered everyone off the train. A huge, billowing cloud lay over Hiroshima. The soldiers surmised that there had been an explosion of an ammunition dump or gunpowder storage. Nishioka was told that only the locomotive would proceed to Hiroshima, leaving the coaches at Kaidaichi, so he got permission to continue in the cab of the engine.

"Pretty soon," Nishioka related, "the locomotive had to stop because the track was jammed with numberless victims of the blast, leaving the city on foot. The line seemed to be endless, and it was a sight horrible beyond description. Many of the victims had the skin peeled from their faces and arms. From time to time one would fall to the ground, while the others kept slowly walking, many of them murmuring in a low voice, 'water, water!'

"As we came closer to the smoke-shrouded city, the ground all around spouted little flickering jets of fire, as of tiny bits of burning material like sulphur. The little flames could have been extinguished easily by stepping on them, but no one wanted to do that. I believe it was from walk-

ing among these little fires that I got the dark spots on my legs that I now think must have been a radiation effect." *

"At length I managed to make my way through the burning city, and found Field Marshal Hata's headquarters below a red shrine on top of a hill. The field marshal's house was not damaged outside, as it was sheltered by the hill from the full effect of the concussion. I surmised that Hata would be inside at such an early hour, and therefore presumably safe. But at the entrance I was met by an elderly officer who I thought must be a major general or lieutenant general, and possibly the field marshal's aide. However, his uniform was in rags, and I couldn't tell his rank as there was no insignia showing.

"I asked where the field marshal was, and the officer answered in a despairing manner, 'I don't know if the field marshal is alive or dead!' This officer added that he thought Hiroshima had been hit by an atomic bomb.

"I myself had a vague idea that such a weapon might be used; our scientists were well acquainted with atomics.

"I decided to walk back to the station and try to take a train to Nagasaki, for it was plain that there was nothing I could accomplish under the circumstances in Hiroshima. The walk back, among innumerable dead and dying, the bleeding and skinless people, groaning and calling for water, was the most horrible, pitiable sight I have ever seen even in a drawing of hell!

"I met one high-school boy, who had been impressed into factory work, who said that he was the only survivor in his

* Petechiae, or blood spots under the skin, are one of the symptoms of overexposure to radiation observed in the victims at Hiroshima.

whole plant, because he happened to be working underground at the time of the blast. He was going to the railroad station as his family had arranged to meet there in case of an air raid. I gave him some rice and water I was carrying, also my name card, and asked him to get in touch with me later, but I have never heard from him and wonder if he died of radiation, as he had walked through the most heavily exposed area."

Because of the shattering roar and tremendous concussion of the blast, most people in Hiroshima apparently assumed at first that a huge gasoline storage tank had exploded. This was the first stunned reaction of Sakajiro Mishima, then thirty-six, a low-paid laborer, who was working at the Mitsubishi yard about three miles from the center of the burst. Mishima, a short, flat-faced man, was engaged in the occupation vaguely classified as "common labor," which in practical terms usually boils down to lifting and carrying heavy objects such as, in a shipyard, parts of steel frames. Employed about three months earlier by a contractor connected with Mitsubishi, he had come up from Nagasaki.

When their eyes and eardrums were assaulted by the overpowering flash and roar, the first impulse of Mishima and the thirty or so others in his work gang was to drop everything and run as fast as they could for the open space of the beach. Mishima had not set his foot down in his first panic-stricken step when he was flung on his face, as if he had stumbled over something, by the force of the shock wave that followed the blast. He picked himself up, found

he was uninjured, joined his mates on the beach, and stood around in bewilderment for several hours as trucks began to converge on the Mitsubishi plant with hundreds of horribly burned victims. Then he began to worry about his personal effects at the small hotel where he was staying, which happened to be three or four blocks from the center of the blast.

He started for home on foot, often having to detour around walls of flame, occasionally stepping over the body of a dead or dying victim.

"I didn't see so many dead bodies in the rubble as I expected, because, as I learned later, many who suffered severe burns ran to the river and jumped in the water," he said later. "I remember a baby playing alone by the side of the river, surrounded by fire and smoke, and I've often wondered how it escaped injury and if it's alive today!

"When I got back to my neighborhood there wasn't a building standing. I judged the location of my hotel from the ruins of a concrete structure nearby, but not a trace of a house could be seen. Not far from where the hotel had been I found the dead body of the proprietor, and nearby the mistress of the house was lying on the ground, calling for water in a weak voice. I saw she was dying.

"I tried to help her but she was a very heavy woman, and I couldn't lift her alone. With the help of some soldiers I brought her to the Japan Red Cross Hospital, and left her in the care of a nurse. She couldn't have lived long.

"The hospital was already crowded with patients, all in serious condition, lying on the floor all around. While I was in the hospital word was passed that all those who were

able to walk should evacuate the remaining buildings as soon as possible, as there might be another air raid. However, despite this warning, the close relatives of the injured stayed beside them in the hospital."

Mishima, with no place to go, wandered into a school ground and came upon an air-raid shelter, where he decided to spend the night. There he had one of the few fortunate breaks in his underprivileged life: he found a heap of brand-new Army shoes stored in the shelter in wooden boxes. "Since I didn't have any shoes, I took one of the best pairs for myself," he confessed.

Towards morning, before daybreak, the pile of shoes inexplicably burst into flame, "so I was forced to get out of the shelter and spend the rest of the night in the open," Mishima said. He lay until dawn under a canopy of smoke, weirdly illuminated by the fires of the burning city. Sometime after daylight a party of soldiers or police, he doesn't remember which, came by and gave him a bowl of boiled rice, his first food in twenty-four hours.

Mishima decided to go to the municipal office. He passed a stalled streetcar that was all battered and charred. Inside, all the passengers were burned black in their seats. Two persons had apparently just reached the steps to board the car when they were caught by the heat wave and became lumps of charcoal in the vague shape of humans.

"A young woman came along the street, with her hair burned completely off, and wearing only white panties," Mishima related. "I couldn't have told whether she was a man or woman but for her breasts. Like the soldiers—I passed a group of burned bodies, it must have been a whole

company, and I could tell they were soldiers only by their Army shoes.

"The rivers were full of dead bodies of people who had evidently jumped into the water to escape the heat, or to cool their scorched bodies, or perhaps were driven by thirst. Any ditch that had water in it was also full of dead bodies."

At the municipal office, Mishima obtained a certificate of distress as a bombing victim. This, under the wartime regulations, would entitle him to free transportation and lodging as a refugee. Then he went to the station, and at 2 P.M., fortified with a ration of Army biscuits, he took the train to Nagasaki.

Akira Iwanaga, twenty-five years old, a ship design engineer, was another recent recruit from Nagasaki for the Mitsubishi expansion in Hiroshima under the urgent demand for war shipping. He was a roommate of Tsutomu Yamaguchi, the designer, in the company boarding house.

Flying glass and falling ceilings took a heavy toll of casualties in the building where Iwanaga worked; about 300 persons were employed there. The plant, about two and a quarter miles from the center of the blast, was shielded from the full force of the shock wave by a hill, but nevertheless all the windows were blown out, the ceilings fell in, and those near the windows felt a strong wave of heat in their faces. Then a high wind blew in, filling the building with whirling dust. From here, Iwanaga said, the mushroom cloud seemed to glitter with flashes of bright gold.

Iwanaga stayed for the next hour in an air-raid shelter,

where he had been advised to go by a watchman who was fearful of a further air attack. When he finally decided to come out of the stifling cavern, he found the company clinic surrounded by a weird collection of ghostlike figures, some almost naked, many of them moaning in agony.

"Their skin," he said, "looked like it was covered with powdered cement. It was impossible to distinguish features, so you couldn't tell if they were women or men. Their hair was all burned off, except those who had been wearing caps. Many of them must have been blind, for you couldn't see their eyes in what was left of their faces."

At four o'clock in the afternoon, the company officials announced that all who wished to go home were free to leave. By this time the city was burning with a steady, crackling roar. The finger of the Ota River delta on which this part of the Mitsubishi plant was located was now isolated from the rest of the city, as all the bridges that hadn't been destroyed in the initial blast were now burning. Hundreds of young office girls, fearing that they would never be able to get home to their families, were weeping in groups. It was decided to skirt the burning peninsula with a launch, and land the stranded workers in some other section of the city from which they might reach their homes.

Iwanaga and Yamaguchi went in the launch but did not see each other in the desperate crowding. They reached the landing at twilight and headed separately into the inferno of the city.

"The first thing I saw, out of the wilderness of smoke and flames, large and small," said Yamaguchi later, "was a group of primary school girls, aged about eight to thirteen, com-

ing out of the city. They were burned so badly that the skin of their faces seemed to be melted. The skin on their arms was all peeled off and hanging down over their wrists like sagging gray half-sleeves. Their clothes had all been blown off except their panties. Some were so badly hurt that they no longer could cry—they were all cried out. Many of them were blind, and the others were leading them.

"There were many burned people running from the center of the city. Others just managed to walk along slowly with the help of sticks. In the background of these ghastly figures was the fiercely burning city. As I looked on this sight I thought of a ghost parade from hell."

Yamaguchi walked across the concrete Miyukibashi bridge, and from there on there were no more roads, just avenues of debris.

Iwanaga, too, going by another route, also passed hordes of dead, dying and hopeless. "Many were lying along the roads—it was so horrible that I tried as much as possible not to see them," he said.

Yamaguchi and Iwanaga, coming home in turn, found their boarding house little more than a mound of splintered wood and glass.

"The landlady was standing absent-mindedly where the gate had been," said Yamaguchi. "She was unable to recognize me until I called out my name, whereupon she burst into tears of joy for my safe return."

Iwanaga, when he arrived, examined the remains of the house closely and marveled at the powerful and strange effect of the blast. "All the glass that had been in one side

of the house was imbedded deeply, in spears, in the opposite wall," he said. "It seems that at the same time the walls were blown in, the ceiling was pushed down and the floors were thrust upward, as if the force waves struck the building from all sides at once."

Iwanaga spent the night with some neighbors in the nearby bomb shelter. Yamaguchi, apprehensive of being trapped by the constantly spreading fires, made his way back to the beach and lay until daybreak in the shelter of a fishing boat. He was fiercely hungry, but had to content himself with drinks of water that he was able to find gushing from broken pipes. His burned arm and face pained viciously.

VI

KENSHI Hirata had instructed his young wife that in case of an air raid, she should leave their house at once and go to the bank of the river by way of the rear gate, or, alternatively, take refuge in the large garden of the prefectural hospital, next to the government office building. Kenshi had arranged for Setsuko to be assigned space in one of the large shelters there. If she could get help to carry it, she was to take with her a trunk packed with rice, sugar and other subsistence foodstuffs, a rucksack containing kimonos and other clothes, and an emergency bag containing their valuables and 2,000 yen in cash. Kenshi himself habitually carried 2,000 yen in his clothing, "in case the banks burned down." In those days the yen was four to the dollar, and Hirata would have lived five months on the sum he carried.

Now that Kenshi had made sure that he had correctly identified the ashes of his house, his first thought was that Setsuko had managed to get to the hospital shelter or the river.

"First I decided to search for her along the river," he said. "I went to the river and looked over the stonewall that goes down to the water. It was low tide, and three women

sat on the shallow bank with their backs against the wall. One was old, but the other two were young. I looked at their faces, and neither was my wife. The older woman was the head of our neighborhood association, and I thought that she might know about my wife.

"She didn't know what had happened to my wife, but she gave me a vivid description of the terrific destructive power of the bomb.

" 'At about eight o'clock,' the woman said, 'I called at your house to distribute rations. After a little talking, I gave the rations to your wife, and I saw her going into the interior of the house with it. I then called at the house opposite yours. After having delivered a ration in that house, I was just going out of the gate when there occurred a great lightning flash. Simultaneously I was blown to the ground.

" 'When I got up I saw an unbelievable sight. The houses that had been all around there were no more. They were all either blown up or knocked down by the blast from the explosion!

" 'I went to where my own house had been, and was wandering about aimlessly and in a flurry. In a little while I heard screams from beneath a fallen house. When I approached there, I found that the two young daughters of my next-door neighbor had been doing the washing in the garden when their house collapsed and the upstairs fell on them. The lower half of their bodies was pinned under the fallen timbers. They were screaming for help, but I was powerless to rescue them. I shouted at the top of my voice for helping hands, but not a single soul could be seen. I went away to look for help, but came back alone and found that

the girls had managed to get out, but their bodies were covered with blood.

" 'These two here with me are those girls. We discussed what to do, and finally came to the river. I don't know where anybody of the neighborhood is except these two girls. Everyone else may have been crushed under the houses.

" 'About fifteen minutes later, many fires broke out here and there. An oil tank seems to have caught fire, as there was a big explosion. I heard many other strange explosions and sounds, and the blaze spread like wildfire, for the whole city of Hiroshima was burning in a little while.'

"I said to myself, 'If my wife is not here, she must have escaped to some other place.' I told the old woman that if my wife should come to the river bank she should ask her to wait for me there. Then I started for the hospital.

"When I reached the hospital I came upon a surprising and shocking scene. Numbers of people, burned red and black, were lying on the ground. Dead bodies were floating in the big pond in the center of the garden, which used to belong to Prince Asano. They must have jumped into the pond because of the unbearable heat. Some were dead with their hands clutching at the brink of the pond. Some were half sunken in the water. I could see that there were many more bodies sunk at the bottom of the pond.

"I walked from one corner of the garden to the other, looking at every woman who seemed to be about the age of my wife. I searched in the pond and in the trees, but I was unable to find her.

"As I made my way through the ranks of horribly

burned people with their skin hanging in shreds, men, women and children crawled toward me with their hands stretched out, asking for water, water. I am haunted by their dying countenances as I had to push away their hands and continue the search for my wife."

Because it was the middle of the summer, which is exceptionally hot in southern Japan, most of the people of Hiroshima were very thinly clad that morning, so they had less than ordinary protection of clothing against burns, Hirata observed. Since there had been no air-raid warning when the *Enola Gay* came over the city, no one was in a shelter; had there been an alarm, no doubt many lives would have been saved, for many instances came to light later of individuals who were caught very close to the blast and yet were unhurt or only slightly injured, like Morimoto the kite maker, though they had very little shielding. The slightest of shielding, it was discovered, could be of critical value as protection against both heat and radiation.

Those who were wearing light-colored clothing were least burned, for dark colors absorb heat. Many women who were wearing figured kimonos found the patterns burned deeply into their skin where the heat bit through the dark portions of the cloth but was partly reflected away by the lighter colors.

Hirata's desperate search for his wife among the maimed and dead brought no result. He left the hospital compound by a rear gate and wandered aimlessly for a time, asking police and others whom he met if they had seen Setsuko. He joined a large crowd of refugees who had gathered by the Sumiyoshi Shrine, where, he recalled sadly, Setsuko

had been looking forward eagerly to a gay festival scheduled for the night of the seventh.

The shrine stood on a cliff. At the base of the cliff lay a welter of prostrate wounded and dead. Kenshi looked carefully among them, searching for young women the age of his wife. Many were unrecognizable because of facial burns.

Then he saw some young women in the middle of the river, clinging to floating timbers. He found a plank, pushed it into the water, and riding it like a surfboard, paddled with his hands to the group out in the stream, but again with no result.

By now it was late afternoon, and Kenshi himself felt half dead with hunger, thirst and fatigue. He drank some water from a broken pipe, then headed back to the site of his house, hoping desperately that Setsuko might have returned there.

"After I got back to the neighborhood of my house," he said, "I found many people lying at the foot of the stone-wall along the river where only the three had been before. I peered into what looked like the faces of young women, one after another, but they were so badly burned I could not discern their features.

"Finally, in desperation, I shouted loudly, 'Setsuko, Setsuko!' An answer came from among the people along the wall, 'Here is Setsuko-san!' I leaped for joy at hearing an answer, and rushed to the group at the wall. Then my heart sank, for it was another woman with the same name as my wife's.

"For awhile I paused to watch the sad sight of fathers

and brothers carrying along the dead bodies of their daughters and sisters on stretchers. These were all high-school girls who had been mobilized in war industries and brought to Hiroshima from the neighboring counties. When the city was destroyed, the men rushed to Hiroshima from everywhere around that day and found their sisters and daughters tragically burned to death.

"As I continued to search for my wife along the banks of the river, I saw more corpses at the foot of a bridge, damming the water. I was no longer affected by the sight of dead bodies. It was now six o'clock but the summer sun was still high, so I decided to return to the site of my house once more. On the way, I searched carefully around the road. I now thought she might have been killed as she was running away from the house.

"Along the way, I saw the mistress of a large Japanese hotel, and her daughter, lying motionless in their garden. Somehow this seemed to encourage me in my search, and I went over to the next road. But finally, at about nine o'clock, I again turned my feet back toward my house, completely exhausted.

"Even in midsummer, night fell before nine o'clock. Though the whole city of Hiroshima was burned down now, a large part of the ruins were still blazing. The sky had turned red, reflecting the flames below. Enemy planes came and left. I was wondering if my wife were dead, but the next moment another thought came that she might still be alive somewhere. Then I thought, if she is dead, she may feel lonely by herself. I will sleep together with her

overnight here. Thus thinking, I threw myself upon the burned site to sleep.

"The sky as I looked up at it was crimson. From time to time I heard what sounded like explosions: bang, bang, bang! Nobody could be seen around me. As I lay alone on the ashes of my home, I felt neither sorrow nor loneliness. My heart was filled with worry about the fate of my wife.

"Enemy planes came and flew over the city at a very low altitude, as if they were flying just above my nose. If it had been a little while ago, I would have rushed into an air-raid shelter at the whirr of the war planes' propellers. Now I just lay motionless. There was no sense of sorrow in my heart, but I thought of various things and was unable to sleep. Finally, because of the fatigue from the day's labor, I fell into deep slumber.

"It might have been around four in the morning when I was awakened by somebody poking me with what seemed like a bar. As I opened my eyes, I saw five or six soldiers surrounding me. They were carrying stretchers. One of the soldiers said, 'Look! He is still alive!' He continued, 'How do you feel?'

"I answered, 'This is the site of my house. When I got back from the company, I found that everything was gone, as you see here now. I thought my wife was probably dead underground here, and I decided to sleep with her overnight here. Therefore, I have been sleeping here.'

"Hearing this the soldiers said, 'We are very sorry,' and went away.

"I looked around, and saw the three women of yesterday eating rice gruel by the river. I had no idea how or when

they had come back. As soon as they noticed me, the old woman who was the head of our neighborhood association, brought me a bowl of rice gruel from some emergency rations that had been buried underground. She had dug up the rice and made the gruel.

"I had had no food since the previous morning, except some water. But I was not particularly hungry even then. However, I was moved to tears by the kindness of this woman. I ate a bowl of gruel, and as soon as I finished I resumed my search for my wife. Now it must have been about five in the morning.

"After I cudgeled my brains as to where to search for her today, I decided to look for her in the Hiroshima railroad station sector. On my way to the station I saw many, many tragic sights that were beyond description, and realized the crime of war against humanity.

"Along the streetcar tracks two or three charred bodies of electric wire workers were lying by the side of an electric pole. They might have been at work on the electric pole when the bomb exploded. They must have been burned black and died instantly. They looked like human-sized dolls made of charcoal.

"As I went farther, I came upon a reservoir used for the prevention of fire. In the reservoir there were numberless corpses piled one upon another. It was a hill of dead bodies in green. All of these people must have jumped into the reservoir because of the terrific heat. Such sights as this could be seen all around this burned city.

"I roamed around the station till about noon searching for my wife, but it was in vain. I still refused to give up

my hope that she was still alive. A thought came to me at that moment that I might perhaps find her at the home of Mr. H——, head of a sawmill located in the neighborhood of the Mitsubishi dockyard. I was on intimate terms with Mr. H——, and I thought my wife might have taken refuge in his home.

"Before I left for the home of Mr. H——, I wrote a note on the remains of the wall at the station: 'Setsuko, come to the house of Mr. H——.' I left that note so that she would be able to get in contact with me if she should come to the station while I was at Mr. H——'s house.

"When I reached the house of Mr. H——, he and his wife came out and asked, 'How about Mrs. Hirata?' When I answered that I had come there in search of her, they said, 'She hasn't come here yet.'

"When I heard that sad answer, my strained feelings collapsed for the first time, because I was with a good friend. I cried loudly.

"Then I searched for her in the sawmill to make sure she was not there, but in vain. I decided to go back to the site of my burned house, and borrowed from Mr. H—— the services of some ten men who worked in the mill, to dig in the ashes.

"We dug all over the site about one foot deep, but not a bone of a human being came out. A new hope rose in my heart. 'She is still alive somewhere,' I said to myself.

"In order to make sure, we dug a bit deeper. What looked like a piece of shell was unearthed. I said it was a bit of shell, but the workers insisted it was a section of

human bone. Suppressing my uneasy feeling, I helped dig around the place from where the 'bone' was unearthed.

"At the spot upon which our living room had stood, the diggers found white bones in pieces, in a form that indicated that she was sitting. It was such a terrific shock to me that I was unable to shed a drop of tears.

"As we continued to work under the broiling sun of midsummer, sweat flowed like waterfalls and our trousers were soaked. From the spot where the kitchen was came a washing basin. I thought, since she came all the way from Nagasaki to die here, I shall put her bones in this washing basin and take them back.

"Only ten days ago we had brought this washing basin and other things with much difficulty in the crowded train from Nagasaki. What a poor girl she was! Ten days later her bones were to be put in this washing basin that she had brought from her native place! Everything I saw and heard around here was more cause for my deep sorrow.

"I was thirsty under the burning sun. I drank water from a broken pipe, then sprinkled a few drops over the bones of my wife in the sense of giving the last water to the end of her short life. At about four in the afternoon, we left for the house of Mr. H——.

"In one of the burned homesites in the neighborhood of my house I saw two skulls lying on the ground. Judging from the location of the site, I assumed them to be those of the wife and child of a naval officer. They had been talking to their neighbors about their plan to visit the naval officer shortly. What a pity for them!

"When I reached the house of Mr. H—, both Mr. and Mrs. H— sympathized with my loss and tried to console me by citing many other cases which were sadder and more tragic than mine. One of the most pitiable and tragic sights, according to the account of Mr. H—, was that of numberless dead bodies of students, both boys and girls, who had been mobilized from the schools to work in munitions factories, that he had seen flowing down the large River Ota. He said it was as if the river were buried by their corpses.

"The tragic death of these youngsters reminded him of the famous legend of *Biyyako Tai*, a tragic but heroic story of the boys of the Aizu clan, whose ages ranged from thirteen to sixteen or seventeen. They fought for their lord against the Imperial Army at the time of the Meiji Restoration, and committed harakari atop the Iyemori mountain as they saw the fall of the castle. Mr. H— was unable to restrain the fall of tears from his eyes at the thought of the corpses of the students flowing down the river.

"Having seen many such pitiable sights in the burned fields that had been the city, I could easily imagine the river. Yesterday I had seen a similar scene when the corpses of the girl students were being carried on stretchers by their fathers and brothers, back to their homes in neighboring districts.

"The thought of many other cases which were more pitiful and tragic than mine lightened my sadness somewhat.

"On the night of that day, fathers and brothers of the mobilized students brought the corpses of their poor loved

ones to the open space in front of Mr. H——'s house, one after another, for cremation. As the bodies were being cremated, crying in the most pitiable, heartbroken and pathetic voices was heard inside the house. The crying rose and then faded, came again and went away. This was repeated all through the night. I spent a sleepless night, praying for the repose of the souls of the dead.

"During the night enemy planes flew over the city two or three times. At each time, I wrapped up my wife's bones and went into an air-raid shelter with them. I shall never forget the warm kindness extended to me by Mr. and Mrs. H—— on that night.

"They boiled the rice that had been kept only for use in an emergency, and offered it to my wife's bones. They also offered flowers to the bones. They did everything that they could. My feelings were again somewhat relaxed at the thought that the soul of my wife, who met with such a violent death, might find repose by the kind and generous treatment of this couple.

"On the morning of August 8, I went to the factory for a short while to make arrangements for my return to Nagasaki and to settle other matters. Then I came back to the house of Mr. H——, where I had lunch. As I heard that the first train for Nagasaki would leave Koi, the next station, at about three in the afternoon, I left Mr. H——'s house around 1 P.M. on foot, carrying my wife's bones with me in the washing basin. On the way to the station I threw the offerings of rice and flowers into a river, in accordance with Buddhist practice.

"As I was walking toward the station, there came along

a man of about forty years old, loudly crying like a child. He was wearing only a shirt. I pitied him, thinking he also must have lost all his family and been left alone.

"Burned corpses were lying on both sides of the road, and here and there in the scorched fields corpses were being gathered up and cremated. I wondered how I was going to broach the death of my wife to her parents."

VII

On the morning after the bomb, the four kite makers—Morimoto, Komatsu, Kinoshita and Doi—gathered in a battered room of their hotel and discussed what to do next.

Slender, spectacled Doi said, 'Nagasaki and Hiroshima have been among the few major cities not bombed. Now that Hiroshima got it, perhaps Nagasaki might be next. Our families live in Nagasaki. I say if we're to die, let's die with our families. So, let's go back to Nagasaki!"

Morimoto, the leader and a calm, thoughtful man, objected. "This is war, after all," he declared. "Our duty is here in Hiroshima, so I say let's just carry on with our work here."

Phlegmatic, bandy-legged Komatsu disagreed. "How can we carry on our work any longer in a city that's been so seriously damaged as this?" he demanded. "Let us go back to our homes in Nagasaki!"

There was silence for some moments. Then Kinoshita, the benign, white-haired one, said to Morimoto: "Why don't you go to the Army and get their permission for us to go back to Nagasaki?"

Morimoto finally gave in, and went off to see his Army officers. In a short time he was back.

"The officer threatened me," he reported. "He said to me, 'Are you terrified by this bomb?' So I had to agree we would stay here."

The other three, who had not been intimidated personally by the officer, were inclined to carry on the argument. The four finally concluded that they would appeal to the Army once more, urging that they be allowed to return to Nagasaki at least temporarily, until it became possible to resume kite making in Hiroshima.

The officer thought this over, and at seven o'clock in the evening he gave his decision: the kite makers could return to Nagasaki until Hiroshima was brought into some kind of order.

They left the next morning, August 8, at about nine o'clock for Koi station.

"On our way," said Doi, "we saw for the first time the extent of the ruins of Hiroshima. By this time, the entire city was almost completely burned down. And still here and there were huge piles of dead bodies, and the rivers were filled with corpses. In the fires there had been no place but the rivers for refuge. Heat and thirst drove all toward the water, and many jumped in just to escape the fearful heat.

"Occasionally we passed the cremation of piles of dead bodies sprayed with gasoline and oil."

Akira Iwanaga, the shipyard engineer, after spending a sleepless night in an air-raid shelter with his neighbors, also decided to return to Nagasaki. He did not have to obtain

permission from superiors, because he had been transferred to Hiroshima for only two months, and his time, like his friend Yamaguchi's, was up today. He, too, set out for Koi station on foot.

It was a cloudy day, he recalls, "not cloudy as if threatening rain, but dark as if the sky were covered by a pall of dust."

On the way to the station he surveyed the dismal ruins of the city he was leaving.

"The whole city was flat," he said. "I could see only burning sewing machines, safes, burned bicycles, a few concrete structures, and corpses everywhere. Also dead horses.

"As I passed along the bank of the river, I saw a woman carrying the dead body of a child on her back. She was screaming loudly, evidently gone insane from shock."

Yamaguchi, deserting the shelter of the fishing boat on the river bank as the grim dawn broke, decided to give up his plan for returning immediately to Nagasaki, for he assumed that there would be no transportation. Then he learned, on inquiry of neighborhood officials, that a train for refugees would leave Koi station for Nagasaki in the afternoon. He determined to take it, thinking it might be the last for some time.

Like many others, Yamaguchi had not eaten for twenty-four hours, but had subsisted on water drunk from broken pipes. He stifled his hunger and set out wearily for the station on the opposite side of the city.

"As I reached the streetcar line," he said, "I saw numberless charred bodies lying in the streets and among the

ashes of homes. One body was completely burned to the bare bones from the midsection down; black flesh remained on the upper part, but the heart and other organs were exposed in a charred condition.

"The city was still burning, and I watched electric poles burn through and fall to the ground. There was no road that was not covered with the debris of houses, and burned bodies. A terrible smell hung over the ruins from the countless corpses.

"As I made my way nearer the station, I saw a woman carrying a dead child in her arms, singing a lullaby. Then there was a mother, not apparently burned but naked, lying at the entrance to an air-raid shelter. Her breast was torn wide open. Beside her, a baby was playing—it must have been inside the shelter when the blast came.

"I had to cross the river to reach the station. As I came to the river and went down the bank to the water, I found that the stream was filled with dead bodies. I started to cross by crawling over the corpses, on my hands and knees. As I got about a third of the way across, a dead body began to sink under my weight and I went in the water, wetting my burned skin. It pained severely. I could go no further, as there was a break in the bridge of corpses, so I turned back to the shore, and started to walk upstream, hoping to come upon another way across.

"Eventually I found a bridge of which one beam still spanned the river, so I inched across on that, about fifty yards to the other side. As I reached there, members of the Reserve Association were bringing truck loads of bodies to

the river, assembling the corpses in one place for disposal. They stacked the dead bodies in piles here and there, like farmers piling rice in a field, and cremated them after dousing them with oil. Many of the dead had internal organs bursting from their bodies, and many had died with their hands over their eyes, following air-raid instructions to the last."

Yamaguchi had one more bridge to cross, at risk of his life. This was a high railroad trestle over a river. Nearly all the ties had been burned, and he had to walk over the narrow steel rail, balancing like an acrobat far above the water.

Near the station he found a crowd around an object that looked like a large piece of partially melted aluminum, which some said had come down on a parachute along with the bomb, perhaps containing some kind of recording instrument. The police were keeping the curious at a distance. Yamaguchi never learned what it was.

The station was jammed with refugees, and Yamaguchi boarded the train at once to obtain a seat. He was feeling extremely ill now, with a high fever and frequent vomiting. He was also desperately fatigued from long hours of walking in the heat and dust, and vicious thirst was tearing at his throat. He was tortured by the sight of clear water dripping from a broken pipe on the station platform, but he felt too weak to walk the short distance to it, and he was more concerned with keeping his seat for the long ride, in his weak state, than with slaking his searing thirst.

As the train finally pulled out, a railroad employee passed

boiled rice, which Yamaguchi accepted gratefully, it being his first food in two days.

In the confusion of those hours, as recalled after a lapse of more than ten years, none of the refugees from Hiroshima who figure in this account remembers meeting any of the others on the train trip to Nagasaki, except the four kite makers, who traveled together. Nishioka apparently left on the first train out of the stricken city. Iwanaga, Yamaguchi and Mishima were probably on the same train leaving Hiroshima the afternoon of August 7, and Hirata and the kite makers seem to have been on the train that left the following afternoon, August 8. Although all of these trains left Hiroshima overcrowded, very few passengers continued the whole way to Nagasaki; most got off at towns a little way out of Hiroshima.

These nine, however, were not the only "double survivors" catalogued by the Atomic Bomb Casualty Commission; there were at least nine others who were not available for interviews because of having moved or for other reasons.

There are records of two young mothers who survived the horrors of Hiroshima, each with an infant, and reached Nagasaki with the children in time to be A-bombed again. One of these, Mrs. Masako Suga, and her son Kanjiro, not quite two years old at the time of the bombings, are still living in Nagasaki, but Mrs. Suga's husband, apparently embittered, has refused to let his wife be interviewed.

The second mother's story is on record, in essentials, with the Atomic Bomb Casualty Commission. When the A-bomb

burst over Hiroshima, Mrs. Ozaki (first name unknown) was washing dishes in her home about two miles from the center of the blast. The baby son Tetsuro, just eleven weeks old, was strapped on his mother's back in the Japanese fashion. The father was away in the Army. The baby was cut behind the left ear by flying glass, but the injury healed in a few days.

Although neither mother nor child was seriously hurt, their house was virtually destroyed, so the mother decided to take the child to the father's family in Nagasaki. They left Hiroshima by train August 8. While walking from the station to her husband's village in the Nagasaki environs, again with the baby strapped to her back, she was startled by the flash of the second atomic bomb which wiped out part of the big southern port city. Neither was injured in this blast.

Japanese census reports, which are generally accepted as quite accurate, name three others, a woman and two men, as double survivors. They were the woman, Yoshiko Ikeda, age thirty-five now; Haruyoshi Araki, twenty-eight, and Fusanosuke Tsuboi, thirty-five. The Atomic Bomb Casualty Commission also lists Hiroshi Shibuta, thirty-eight, and Kuniyoshi Sato, age unknown. Except the Sugas who refused to be interviewed, none of these nine could be found after ten years.

Only one case is known of a survivor of Hiroshima who escaped safely from the first atomic bomb and went to Nagasaki only to be killed by the second. He was Dr. Susumu Tsuno, then dean of the Nagasaki Medical College. There may have been others, but they are not on record.

A notable thing about the double survivors who lived is that they have never sought to call special attention to their remarkable experience. None of them belongs to any of the various organizations against nuclear weapons that have formed in the two bombed cities.

Part two

VIII

OPENING grandly onto the East China Sea from the western end of Kyushu, the southernmost of the four main islands of Japan, Nagasaki has been an international seaport for more than 400 years, and the cradle of some of the most fascinating developments of Japanese history. During most of this time the other ports of the empire were closed to foreign vessels; all foreign contact was through Nagasaki alone, and this has given the city a unique character in Japan, blending the charms of European, Chinese and Japanese cultures. Remnants of the old Dutch settlement remain on the little, fan-shaped island of Dejima, originally a Portuguese concession, and the only foreign quarter in Japan for more than two centuries.

The Christian churches show French and Spanish influence, reminiscent of the early Roman Catholic missionaries who came to Kyushu, beginning with St. Francis Xavier in 1549. There are Chinese Buddhist temples as well as Japanese Shinto Shrines. The narrow, winding streets, some of them built as steps up the steep green hills that border the city on the landward side, and the crowded houses built one above the other are also reminiscent of China.

On one hilltop stands the musty, decaying mansion, gracious in an old-fashioned way, said to have been the home of "Madame Butterfly." It is easy to imagine Madame Butterfly and Lieutenant Pinkerton riding in a carriage along the same streets that one travels in Nagasaki today in streetcars and taxis. And the "Gay Quarter," with its geisha houses and brothels faithful to traditional architecture, could be a model of a Japanese city of the Shogunate times, except, of course, for the dancing neon lights above the old-fashioned paper lanterns.

Altogether, Nagasaki imparts a sense of antiquity with a cosmopolitan atmosphere that one finds in no other Japanese city. The atomic bomb did not destroy this. Out of that dreadful holocaust, which fortunately did not engulf all the city because of its peculiar configuration, has come in fact an addition—incongruously—to the cultural life of the ancient port, centered on the new museums and monuments that now mark the spot where the bomb fell.

"If you have to be A-bombed," the citizens of Nagasaki say today, ruefully, "it is better that you be the first!"

There has been a wry jealousy of Hiroshima and the fame of that city throughout the world as the site of the first atomic bomb drop.

The name of Hiroshima has become symbolical of the age in which man has mastered a terrifying new force, as demonstrated gruesomely in that unfortunate city. The importance of this symbolism appealed at once to the Hiroshima municipal officials as well as to the citizens at large, who soon began to rebuild their city with the aspiration that it be the sentimental capital of all world peace move-

ments, especially those centered around demands for the banning of nuclear weapons.

The area over which the first atomic bomb exploded, at about 1,500 feet, has been made into a Memorial Park dedicated to World Peace. Its principal features are a simple monument, that resembles a bomb-shelter, containing the names of all victims, written on pieces of paper and deposited in a crypt that has become a shrine; a museum displaying charred relics and other graphic memorabilia of August 6, including some of the grisliest photographs ever put on public exhibition; a meeting hall of exceptionally meritorious architecture in the functional style; and a modernistic, air-conditioned hotel that is one of the best in Japan.

These structures surround a broad green esplanade where the annual rally against nuclear weapons is held each August 6, with delegates invited from all over the world. Brooding over this chaste scene is the grim skeleton of the former Industrial Hall, with the steel tracery of the great dome remaining where the covering was stripped off when the bomb exploded almost directly above it. This impressive ruin, renamed the Atomic Dome, has been preserved—amid a great deal of controversy—as a permanent, living reminder of the horror of atomic war.

The authorities and citizens of Nagasaki, in a sort of ironic chagrin, decided to make their atom-bombed city a temple to Culture in the nuclear age, since Hiroshima had asserted first call on Peace. As a beginning, they have erected a gigantic statue of symbolic nature and a towering museum at the site of the blast. There are long-range plans

for all sorts of other cultural enterprises as a memorial to the city's ordeal, but little money.

It was only through an accident of the weather that Nagasaki caught the second atomic bomb. The primary target selected for the August 9 drop was Kokura, a steel-manufacturing center at the northern end of Kyushu, with Nagasaki as an alternate. Either city was a legitimate military objective. Nagasaki contained, among other war-making facilities, the principal Mitsubishi shipbuilding yards. It was here that the most powerful battleship the world has ever seen, the 73,000-ton *Musashi,* with nineteen-inch guns, was launched. She was later sunk.

When the B-29 roared over Kyushu from Tinian with a plutonium bomb in her belly, Kokura was obscured by clouds. The pilot turned south to Nagasaki. That city was partly overcast, but the bombardier let go, and planted the bomb in the middle of a valley, unintentionally near the largest Roman Catholic church in the Far East, which was full of parishioners going to confession. However, the failure to lay the bomb in the waterside industrial section saved a great deal of the city from destruction, for the walls of hills enclosing the site of the blast acted as partial natural shields. Nagasaki's inhabited portions flow along the harbor and up the valleys, forming a rough X. Had the city been flat and concentrated like Hiroshima, the death and destruction would have been much greater than it was.

Although the plutonium bomb detonated over Nagasaki was reckoned to be about three times as powerful as the uranium type dropped on Hiroshima, the effect in the

southern city was less widespread because of the circumstances that inhibited the bombardier, and the city's natural arrangement. But the survivors in Nagasaki take a sardonic comfort from the fact that they lived through an attack by the most devastating weapon ever aimed at an inhabited place in the history of warfare.

The B-29 was droning over the historic section known as Urakami when the bombardier released the bomb fated to end the war. At exactly two minutes past eleven o'clock on that hot, humid morning of August 9, 1945, the fission of plutonium 239 took place with another incandescent burst of flame and deadly radiation, accompanied by a blast of such intensity that it leaped the hills and shattered buildings on the other side.

At this time Nagasaki had a population estimated at about 200,000. The official Japanese count of dead and missing, through a painstaking check of city records, indicates that 21,670 persons, easily over 10 per cent of the total residents, died at the instant of the blast. By January 1, 1946, not quite five months later, the roll of the dead came to 39,214, nearly 20 per cent. The wounded, as reported from aid stations, totaled 40,992. Many other estimates of casualties, which may or may not be as reliable as these, placed the figures much higher. It has come to be accepted as a conservative reckoning that one-third of the entire population were direct casualties. Of the injured, 35 per cent suffered radiation effect, 65 per cent had severe burns, and 70 per cent had a combination of injuries.

It had been calculated that the bomb exploded 1,500 feet in the air and about 500 yards laterally from the Ca-

thedral of Our Lady of the Immaculate Conception, better known as the Urakami Church. This historic edifice, largest Roman Catholic cathedral in the Far East, had been built in 1865 to serve the foreign community of Nagasaki at a time when Christianity was still a forbidden religion for Japanese. At 11:02 A.M. August 9, the cathedral was filled with penitents intending to confess in preparation for a forthcoming feast day. The explosion demolished the entire structure, leaving only part of the entrance standing, which can be seen today. And 8,500 Christians died in the church and the city, thus wiping out at one blow approximately 40 per cent of the famous Roman Catholic community of Nagasaki, the greatest Christian concentration in Japan.

Later, some Japanese thought it ironic that the most devilish bomb dropped on Japan by a Christian nation should take a greater proportionate toll of the Japanese Christian communion than the rest of the population. But the Roman Catholic congregation, remembering their long chronicle of martyrdoms in Nagasaki—including most notably the mass crucifixion of six Spanish Franciscans, three Japanese Jesuits and seventeen Japanese laymen in the persecution of 1597 under the Shogun Hideyoshi—decided to consider this another martyrdom in atonement for the sins of the Japanese nation.

Immediately after Japan's capitulation, which occurred six days after the bombing of Nagasaki, it became fashionable for Japanese publicly to blame themselves for the war, and there was nothing bad enough they could say about their leaders, or their own part in supporting the militaristic national policy. The Roman Catholics of Nagasaki, there-

fore, gained some spiritual gratification, or so it seemed, from asserting that the crimes of the Japanese people as a whole had been so great that it required the deaths of thousands of Christians by the atomic bomb to appease an outraged God, whereupon the war ended.

IX

On reaching Nagasaki, Takejiro Nishioka, the newspaper publisher, went directly from the railroad station to the official residence of the Prefectural Governor, a Mr. Nagano. By this time, it had been announced over the government radio that Hiroshima had been destroyed by a new type of bomb. Nishioka believed he was probably the first eyewitness to the disaster to come to Nagasaki. His anxiety, through a highly developed sense of duty, to impart his news of the catastrophe to the governor was so great that he gave no thought to going home first.

The governor was at home. Nishioka informed him that Hiroshima had been completely destroyed by the atomic bomb. Nagasaki, the publisher believed, might be the next target if the super-weapon were used a second time, as the great port had had only five small-scale air raids all during the war. Nishioka strongly urged the governor to send an observer to Hiroshima to study the effect of the bomb, so that the most effective countermeasures might be taken should Nagasaki be hit. Then he gave the governor a complete account of what he had seen.

"There was no freedom of speech in those days," Nishi-

oka said later. "Should what I had told the governor have been circulated in rumor, I would have been liable to prosecution for spreading disquieting stories endangering public security. So I begged him on no account to repeat my story to anybody.

"Later, I learned that the governor, violating his promise to me, had immediately assembled the executives of the municipal government in a big air-raid shelter and told them what I had given him. I believe it was because of that account given by the governor that none of the policemen in Nagasaki were injured in the blast. For this reason: I had observed in Hiroshima that when the flash came, there would be a few seconds before it was followed by the blast wave, and that between the flash and the blast there was time for anyone who wished to do so to get into a nearby shelter. If one reached a bomb shelter, in all probability he would escape injury.

"Later I had tragic confirmation of my theories. I have often bitterly regretted the law that gagged me as a newspaperman, and forced me to confine my communications to the governor's ear alone. I would have given a description of the horrible effect of the bomb to all the people of Nagasaki through the newspaper I owned, and possibly many more lives would have been saved."

Meanwhile, on August 8, Nishioka was still occupied with the project for building a huge bomb shelter where the newspapers could be published in an emergency. The atomic bombing of Hiroshima had given this plan even greater urgency.

That afternoon, he and four or five other newspaper

executives, with the chief of the prefectural police and the head of the *Tokko*, the special plain-clothes police, visited the Oura district, a particularly hilly area in Nagasaki, to inspect possible sites for the shelter. The party concluded that for various reasons this location was unsuitable, but finally settled upon another prospective site, by a hill on which the famous Gokoku Shrine, dedicated to the military dead, was situated. The plan adopted was to dig a tunnel and cavern in this hill and move the presses there. The group arranged to go over this spot at eleven o'clock on the following morning, August 9. The chosen site was in the Urakami district, close by the Roman Catholic Cathedral of Our Lady of the Immaculate Conception.

Nishioka and the others were saved from keeping this fatal rendezvous by the publisher's sudden inexplicable attack of illness as they were inspecting the Oura site.

"All my life I had been very healthy," he said later. "So far as I remember, I don't think I had ever had even a high temperature before. But on that day I had a fever, which I little realized then must have been caused by the radiation effect on my legs, that had now begun to show blue spots under the skin. I felt quite ill. The other members of the party suggested that, as I might not be feeling up to the appointment at eleven o'clock, we should meet sometime in the afternoon instead.

"All of us escaped death because of this change of schedule. If we had gone at eleven as planned, we would have been killed instantly, because the shrine on the hill was very near the center of the blast. Afterward, there was no

trace of this structure, not even a stone. Even the shape of the hill was changed.

"As it turned out, the chief of police and the newspaper executives all escaped injury by taking shelter where they were when the flash came, some just in ditches."

The outbreak of Nishioka's strange illness was followed by a period of extreme anxiety and restlessness for him. He ordered his family to go to Unzen, a famous resort in a lovely national park of the same name, about two hours by car from Nagasaki. He himself decided to spend the night in a well-known hotel near the newspaper office. There he retired early, spreading a mosquito net over his bed.

"About 11:30 P.M. I was awake," he recalled. "I called the maid and asked her to bring my chopsticks, which I had kept in this hotel for perhaps the last twenty years. They were one of two ivory pairs presented me by a friend. I had kept the other pair in Tokyo, where they were lost in an air raid. The set in Nagasaki was kept in a narrow wooden box, which the maid brought me. I have no idea what impulse made me do this at such a late hour.

"I decided to go back to the newspaper office, just behind the hotel—which, incidentally, was totally destroyed in the fire after the atomic bomb. There I opened the drawer of my desk, took out some letters and put them in my pocket. I asked some of my men to fill up a small truck with gasoline. In the truck I set out for Okusa, the fourth station from Nagasaki. Here I stayed the rest of the night in a shabby Japanese-style inn on the beach. I got up early in the morning and took a train at 6 or 7 A.M. for Isahaya,

figuring to take a car from there to join my family at Unzen."

Isahaya, a town about eighteen miles northeast of Nagasaki, was where Akira Iwanaga, the ship design engineer, had left the train from Hiroshima on the morning of August 8, to spend the day and night with his parents before continuing to Nagasaki. At about the time that Nishioka was speeding toward Isahaya early August 9, Iwanaga was standing patiently in a long line to buy his ticket from there to Nagasaki.

Yamaguchi, the ship designer, and Mishima, the laborer, who had also been on the train from Hiroshima with Iwanaga, continued to Nagasaki. It had been a long, uncomfortable overnight ride, with the train stopping frequently because of air raids by low-flying American carrier planes. At one point the train was held for an interminable, steaming interval in a tunnel, to avoid possible machine-gunning by the swooping planes. When they reached Nagasaki on the eighth, there was an air-raid alert on there, and the streets were deserted.

Yamaguchi's burned arm and face were swelling painfully. He decided to go immediately to the Mitsubishi company's hospital for treatment.

Mishima, dead tired, plodded wearily through the empty streets to his tiny house, in a narrow alley high on a hill. He decided to rest there for the day, and to go sometime the following morning to attend to some personal business in Urakami. Fortunately, in the morning he still felt tired, and put off the trip until afternoon.

When Yamaguchi reached the hospital, all the doctors

and nurses were in air-raid shelters. He waited till the alert was lifted.

"By chance I met an eye specialist who had been my senior at school," Yamaguchi said later. "At first he didn't recognize me. I told him I had been injured at Hiroshima by some special type of bomb. He looked at my burned face and arm, and took me at once to his operating room. There he began to cut away all the burned skin with scissors. It was a slow job, because we had to stop and go to the air-raid shelter three times while he was trying to treat me. This doctor, whose name was Sato, was the first to treat an atomic bomb victim in Nagasaki, although he didn't know it at the time.

"When the burned skin was all removed, the flesh below was a bright, raw red—'like whale meat,' Dr. Sato said. He fixed up the wounds with oils, and bandaged them, and I went home, not dreaming that the next day I was going to be an atomic bomb victim again!"

When Yamaguchi came to his home, the little frame house was empty; all the family—his father, mother, his twenty-six-year-old wife Hisako, and their year-old-son—were in the air-raid shelter. Yamaguchi took off his shoes in the little stone-paved vestibule, stepped up onto the raised floor of clean, severely woven grass matting, and sat to wait, cross-legged.

After the all-clear sounded and everyone left the air-raid shelters, his mother was the first to appear at the house. About to slip off her *geta*, or wooden clogs, at the doorway, she saw her son and stopped, startled.

"For a moment," said Yamaguchi, "she thought I was a

ghost, with my face hidden by the bandages and my feet under me. In Japan, ghosts do not have feet. She didn't dare come in the room, but finally asked me timidly, 'Have you got feet?' I showed her my feet, to reassure her that I was alive and not just the ghost of her son, before she would come in.

"My family knew about what had happened to Hiroshima. They said there had been an announcement on the radio that Hiroshima had suffered heavily from a new type of bomb.

"My mother and father thought I must surely be dead, when they heard this, since I had sent them a telegram very early on the sixth, before the bomb fell, saying I would be home the next day. When I didn't appear, there was a great family discussion. Mother said someone should go to Hiroshima and recover my ashes. But my father argued; how could my ashes be recovered when no one knew just where I was? And then I appeared, looking like a ghost."

Hisako Yamaguchi took her husband away to their new house, which he had not yet seen, near the Mitsubishi dockyard. He now had a very high temperature. That night he fell into a coma. The next morning, August 9, although very weak and reluctant to leave his bed, he left home at nine o'clock to go to the Mitsubishi offices and make a full report on Hiroshima, as he had been instructed to do the day before.

At about this hour the train carrying Kenshi Hirata and the four kite makers was pulling into Isahaya station. Komatsu had already gotten off at Omura, where he intended to visit his sisters.

It had been a fatiguing and depressing journey, in which they had witnessed the burning of three more cities along the way—Yahata, Tobata and Kokura—and were stopped repeatedly to wait out air raids.

By the time the train had reached Isahaya, the remaining three kite makers had lost their eagerness to return straightaway to Nagasaki, which was now only an hour away. They argued awhile, considering the probability of an air raid on the city. Finally they decided to continue to Michino, a suburb, but on arrival concluded that they might as well go on. They reached Nagasaki main station at about ten o'clock, and scattered to their homes, Morimoto by streetcar and Kinoshita and Doi on foot.

Kenshi Hirata, on the same train, had slept only fitfully. All through the protracted, nerve-wracking journey he had sat with the basin containing his wife's bones resting on his knees, fearing that if he placed the vessel on the string-net baggage shelf some harm might come to them. From the Nagasaki station he walked home, carrying the basin carefully before him. On the way, a siren signaled the lifting of an air-raid alert. Kenshi reached the house of his aged parents a little before eleven o'clock.

Komatsu, the flat-faced, bandy-legged kite maker, breakfasted at the home of his sisters in Omura, and at ten o'clock took a train for Nagasaki. At eleven o'clock this train was at Nagayo station, in the Nagasaki suburbs. Iwanaga was on the same train.

Nishioka had reached Isahaya, where he spent about an hour trying to find automobile transportation to Unzen, to join his family. While talking the situation over with Mr.

Yonekura, chief of the Isahaya bureau of Nishioka's newspaper, a taxi came to the station and dropped six passengers. The driver had intended returning directly to Nagasaki, but consented to digress to Unzen when he learned that his passenger would be the well-known publisher, Mr. Nishioka. At eleven o'clock the driver, Shishitaro Sakai, and Nishioka had stopped for a few minutes in Obama, a hot springs resort. While chatting with a local official here, Nishioka saw his second atomic bomb explode as if he had a ringside seat, though he was twenty miles away.

X

WHEN the train that Akira Iwanaga, the engineer, and Masao Komatsu, the forty-year-old kite maker, were riding reached Nagayo station just outside Nagasaki proper, Komatsu heard the thunder of airplane engines. He had not had time to consider whether it was an enemy plane when the interior of the coach was bathed in a stark, white light.

Komatsu immediately dived for the floor.

"Get down!" he screamed at the other passengers.

Some recovered sufficiently from the daze of the blinding light to react promptly to his warning. Seconds later came the deafening crack of the blast, and a shock wave that splintered all the windows on both sides of the train. The passengers who had not dived under the seats were slashed mercilessly from waist to head by glass flying at bullet speed.

Iwanaga, sleeping on his seat, was awakened by the first commotion, and when he saw his fellow passengers jumping under seats he instantly rolled onto the floor, a scant split second before the windows blew in.

The station master and his assistants ran the length of the train, shouting at the passengers to get out and take

shelter. Obediently, they filed into a wooded area behind the station, amid speculation that the train had been fortunately, but narrowly, missed by a cluster of bombs. Iwanaga and Komatsu realized that this was not the case; their thoughts immediately reverted to Hiroshima, and they knew instinctively that they had again been exposed to the dreadful new type of bomb. This supposition was confirmed by the appearance of the sinister mushroom cloud.

After standing around an hour or so and still seeing no sign that the train would continue into Nagasaki, Komatsu started home on foot. He met the first refugee from the city near the Urakami reservoir, not far from the center of the blast. This man was cut and bruised, but able to walk. Smoke was beginning to cover the city, and flames were visible now.

"What happened?" Komatsu asked. The stranger shrugged. "The whole city of Nagasaki has been wiped out," he muttered.

Komatsu could see streams of people climbing the hill toward the reservoir. He now discovered that the direct route to his home was blocked by flames.

The kite maker decided he would have to skirt the burning city across the steep hills.

"As I crossed one hill after another," he said later, "I found that all the trees had been blown down, all the grass was completely gone, and the vegetables were burned up in the gardens. Only a charred pumpkin was left here and there. However, for some reason, the rice plants survived, except, of course, in the fields near the center of the blast."

Komatsu finally reached a summit from which he could

see his own house. To his surprise, it was still standing. He stopped and breathed a prayer of thanks. All around, the flames were rising, and refugees were pouring out of the doomed neighborhood in bigger and bigger crowds, moving on foot toward the unpopulated hillsides. It seemed to Komatsu that a light rain was falling on the moving mass, then he concluded that it was a mist of some sort, possibly dust.

Eventually, the train did leave Nagayo and crept into Michino station. Here the passengers were again ordered off, as the train had been commandeered for refugees, but Iwanaga was only fifteen minutes' walk from his office. Signs of destruction and death increased as he drew nearer to Urakami. Iwanaga encountered the first charred dead bodies at the foot of a hill which was pierced with five tunnels housing portions of the Mitsubishi munitions works. Here, he said, almost a mile from the center of the blast, workmen outside the tunnels were burned to death, apparently instantly, and even those inside were badly scorched.

Shortly beyond, Iwanaga perceived that it would be dangerous for him to proceed. The city before him was a roaring sea of flames under a darkened sky, and houses on the borders of the weaving fires burst ablaze as he watched. He thought of trying to reach the Mitsubishi plant by crossing the hills, but found the way blocked by huge trees that had been blown down by the blast. And fires were breaking out on the hills now, too. Iwanaga gave up

his plan to report to his office, and turned back to Isahaya. He was still walking when night fell.

Mishima, the uneducated laborer, took the doom of Nagasaki stoically and with resignation. On the night of his arrival from Hiroshima, he was visited by a delegation from the air-raid defense corps, seeking information on the "new type of bomb," as the government radio had described it.

"If that new bomb should explode near you, there is just nothing you can do," he told them. "Whether you are inside or outside a house, or in an air-raid shelter, won't make any difference. You will be killed!"

The air-raid wardens were impressed and discouraged by the laborer's dismal advice, but didn't argue or ask further questions. They merely murmured the polite Japanese rejoinder to every possible statement, which is "*Ah, so desu ka?*" (Oh, is that so?), followed by a respectful intake of breath through the teeth. The inflection may make the universally used phrase either an agreement or question, and sometimes it is hard to tell which the speaker means.

Mishima's advice, of course, was the worst that could be given, but he followed it faithfully himself when the unearthly light of the bomb illuminated Nagasaki like a gigantic photoflash. He sat still when the dreadful concussion came, philosophically watching his boxlike house shake from side to side as in a prolonged earthquake. His wife followed his example. When the house stopped shivering and they found themselves uninjured, they calmly went outside and watched the formation of the mushroom

cloud. After a time Mishima started walking toward Urakami to see if a family of his wife's relatives who lived near the center of the blast needed assistance. He found them all dead.

Heavy, stolid Kinji Kinoshita, walking home from the Nagasaki station, leaked perspiration from his hair down over his soiled shirt. Stopping occasionally to rest in the humid heat of late morning, he stumped slowly up the long hill to his house. Passing a Buddhist temple, he heard a radio playing loudly, as all Japanese radios seem to do. A news announcer broke into the program and brayed that an air-raid warning in Saga Prefecture, north of Nagasaki, had now been lifted as several B-29's had turned south.

When the kite maker reached his home halfway up the hillside, his clothing was soaked. Going into the house, he found a Buddhist ceremony in progress, with a priest from the temple officiating at a memorial service for Kinoshita's mother, who had died three weeks before. Besides the priest, Mrs. Kinoshita and the two daughters, one twenty-seven and one thirteen, were taking part in the service.

Kinoshita, after greetings and a few minutes' conversation, excused himself, went into another room, and took off his wet clothes. He found a basin and towels and, wearing only brief underwear, went outside to bathe.

As he was wiping the perspiration from his heavy body with a damp, cool towel, he was momentarily blinded by a flash that seemed to cover the sky. Like the other survivors of the Hiroshima attack, Kinoshita realized at once what the strange, blinding light meant, and reacted without

a second's hesitation. He threw himself face first on the ground, at the same time shouting into the house, "Cover yourselves with *futons!*"

Then the air was split by the deafening blast, and a few seconds later came the crashing shock wave. The house whipped from one side to another, with smashing and tinkling sounds, and several tiny flying spears of glass gashed the kite maker's bare feet. The others, inside the house, were badly shaken but suffered no serious injury.

As the mushroom cloud spread and the sky became dark, Kinoshita dressed swiftly and, fearing the spread of fires that then could be seen all over the city, led his family to the top of the hill. From there they watched, in amazement and awe, the swift burning of the town.

Tsuitaro Doi, who had also walked home, lounged gratefully on a cushion on the *tatami* floor of his tiny living room and unwound his cloth wraparound legging as he talked of his experiences in Hiroshima to his wife. She carried their baby daughter on her back in the Oriental fashion. A son, Haruyoshi, nine, was playing in the grounds of a nearby Buddhist temple, and another daughter, Masako, seven, was just outside the house.

Doi was telling his wife in detail about the bomb.

"If you ever see that flash," he said, "immediately prostrate yourself on the floor, or the ground if you are outside. Don't move, and try to inhale as little air as possible . . ."

As he was saying these words, the windows lighted as if giant searchlights had been turned directly into the house.

"There, you see it? That's what I mean!" Doi cried,

dropping the half-unwrapped legging. Mrs. Doi, startled, jumped to her feet impulsively and turned to run out of the house. Doi grabbed her and pulled her and the baby down as the blast wave shattered all the glass in the little cottage and ripped off the wood and paper sliding doors. As the flimsy house steadied Doi opened his eyes, and saw that the interior of the room was a wreck. But neither he nor his wife nor the baby was hurt.

The white-haired kite maker leaped and ran wildly to the temple in search of his son, first noting that his young daughter in the yard was uninjured. The son, he found, had been thrown off his feet by the blast, but bore no marks of injury. This was about a mile and a half from the center of the explosion.

"During the afternoon, wild rumors spread throughout Nagasaki that the city was marked for a second attack by the same type of bomb," Doi recalled later. "Since about half the city was left unburned, I was inclined to believe these rumors, so I decided to evacuate my family immediately.

"Toward evening, carrying only what rice we could get, we started on foot for a fishing village about five miles out of town, where I thought we would be safe. The road to the village passed directly through the bomb center, hence was blocked by fire, so we had to take a long route over the mountains and didn't reach the village until two or three o'clock the next morning."

Morimoto, the master kite maker, who lived near the business center of Nagasaki, was also giving his family a

detailed account of the effect of the new bomb on Hiroshima when he was interrupted by what all the survivors referred to, descriptively, as the "lightning flash."

Several neighbors had gathered in the Morimoto house to hear a firsthand account of the destruction of Hiroshima. By this time everyone in Nagasaki must have been aware, from the radio and newspapers, that the Americans had developed a new explosive of fantastic power, and there was an immense curiosity about it, which at that moment was being matched all over the world.

Morimoto was talking about the great flash, the blast effect, and was launching into a vivid description of the destruction in Hiroshima when the blinding light seemed to burst directly over the room.

"There, you see!" he shouted. "It comes again! That's what I mean!"

Morimoto, a cultivated man of forty-six, a celebrity in a city where the making and flying of kites is a respected art and sport, acted coolly now. Aware that there would be a few seconds before the blast struck them, he quickly and efficiently urged the group into an air-raid shelter just outside. As a result, Morimoto and those with him, about a mile and a half from the center of the burst, were unhurt. He reflected later that they might have been injured or killed had they remained in the house; when they returned to it, most of the walls had fallen down and the heavy tiles had been blown or bounced from the roof.

Morimoto lost ten relatives in the two atomic bombings, eight of them in Nagasaki. One of these, he said, was stand-

ing in Urakami watching the B-29 fly away when the bomb exploded. No trace of him was ever found.

In his sixth-floor office in the sprawling headquarters of the great Mitsubishi industrial combine, Tsutomu Yamaguchi was the center of a crowd of fellow employees. As instructed, he gave them a careful, methodical presentation of the story of Hiroshima as he had seen it, and ended with lengthy, well-thought-out and sensibly organized recommendations for self-preservation should any of his hearers be caught by the explosion of a similar bomb. Spelling out the danger of flying glass, he urged them to keep windows open during an air-raid alert, and at the instant of the flash to seize at once upon any shelter available, if it was only to stand behind a wall.

As mentioned before, Yamaguchi's section chief, an engineer, was skeptical that enough explosive could be packed into a single bomb to destroy an entire city. As he was expressing these doubts, the second A-bomb confirmed young Yamaguchi's words, exploding in a huge ball of fire about a mile away.

Yamaguchi's lecture on A-bomb precautions, he pointed out later, was not lost upon his colleagues. With the young designer's words still fresh in their minds, they leaped for the cover of desks and tables. "As a result," said Yamaguchi, "my section staff suffered the least in that building. In other sections there was a heavy toll of serious injuries from flying glass."

The office where Yamaguchi had been telling his story was engulfed in heat that the youthful designer felt all

through his body. "This time I thought I was gone," he said later.

In the confusion that now disorganized the Mitsubishi plant, Yamaguchi slipped away. In pain, hopeless, he had no clear idea where he was going as he started to climb a steep, rocky hill from where he could view the city. At the top of the hill there was a watchtower, made of concrete with a steel door. Shortly Yamaguchi was able to deduce that the watchman on duty had been outside at the time of the explosion, looking at the plane through powerful binoculars. The glasses had been blown from his hands, and the man lay on the ground, unconscious and burned all over his body.

His mind numbed by the renewed pain of his own burns, exposed to the air since the bandages were blown off as the blast swept through the Mitsubishi office, Yamaguchi tried the steel door to the tower. It was warm to the touch. He himself felt strangely hot all over. He tugged open the door, went inside, and peered at the city through a narrow slit of a window. He thought surely all of his relatives and family must have been killed.

XI

NISHIOKA, the publisher, was chatting with the branch chief of the prefectural government bus company at Obama, when his sharp ear caught the faint hum of far-away airplane engines. He searched the sky with alert eyes, and picked up a pair of B-29's approaching Nagasaki from Ariake Bay, the broad inlet where the Imperial Japanese Fleet had trained in late 1941 for the attack on Pearl Harbor. He watched them cross overhead in a clear sky. As they flew over Nagasaki, the publisher was electrified by the sudden appearance above the city of a gigantic gold and white ball, so brilliant that he involuntarily closed his eyes. There was a sibilant gasp from the large crowd waiting for the government bus.

The publisher realized at once what the fireball meant. "Get into the shelter right away!" he shouted. He repeated the shout as he himself ran into the large air-raid shelter by the bus station. The driver of Nishioka's taxi, Sakai, was right behind him. A moment later the heavy roar of the explosion boomed in their ears, and shortly afterward the little resort town was struck by a sharp, high wind that made the houses sway on their foundations. When this

passed Nishioka knew he was safe, and came out of the shelter.

The sun had turned a dull red, as if seen through a thick veil. The atomic cloud now towered high above the city. It was a mixture of brown, and dirty white and the color of fresh blood. Nishioka's mind was left blank for a second or two by a sense of shock and foreboding, then he turned quickly to the taxi driver and ordered him, crisply, to take him in the car to Nagasaki. He leaned forward tensely as the taxi sped toward the city over rough, pitted roads.

It was in Isahaya, the near suburb, that Nishioka met the first refugees from the stricken city. By this time the day, previously bright under a partial cloud cover, had darkened grimly as the millions of tons of dust sucked into the mushroom cloud spread thickly across the sky.

In Isahaya, Nishioka met a pitiful collection of injured whose appearance took his thoughts back to Hiroshima. He had a feeling of dull horror.

"There were scores of them, many in rags so that I could see they had been deeply burned all over their bodies," Nishioka related later. "The skin was peeled in deep strips from their faces and chests and legs, as if they had been deftly skinned with knives. The exposed flesh underneath was deep red, sometimes black. Some had no faces, literally, just black ridges of charred flesh in which the nose, mouth and eyes could hardly be distinguished. They uttered queer, short, animal-like sounds, as if they were beyond screaming. One man, walking on charred stumps of legs, was carrying a dead baby upside down. Its legs were burned black."

The publisher found Nagasaki turned into a human charnel house. Grotesque, half-dead figures walked the littered streets, recoiling as high winds carried heat from the furiously burning city against their flayed carcases.

The convection effect of the untamable flames drew high gales into the city's multiple valleys. Although the hill pattern had saved much of Nagasaki from immediate destruction by blast, and the uninhabited sections on the mountainsides acted as natural fire breaks, the shock wave had traveled over the ridges, and there was no section of the city that completely escaped damage.

Again, as in Hiroshima, the pulling down of electric wires as buildings, poles and trees collapsed, the stripping away of insulating material from buildings, and the upsetting of cooking fires as houses trembled violently in the earth-shaking concussion, all combined to contribute to the spread of the conflagration.

As Nishioka drove slowly into the city, making numerous detours to avoid neighborhoods in flames and streets blocked by debris, the way was lined with the dead and dying. "Victims by hundreds were lying by the side of the river, on the streets, in the burned fields," he said. "Those who were still alive were moaning helplessly for water.

"Later, all the corpses had to be piled high in some handy open space, usually the playground of one of the numerous primary schools, and cremated with gasoline. This sad and grisly business went on for many days."

Nishioka had dramatic and tragic confirmation of his theory, which he had communicated to the prefectural governor, that those who got promptly into air-raid shel-

ters had a good chance of surviving injury by this bomb. One of those to whom the governor had passed on the publisher's advice, was a district police chief named Mizuguchi. That night, Chief Mizuguchi had told his family. Nishioka had the story later from Mizuguchi.

"On that fateful morning of August 9," Nishioka said, "Chief Mizuguchi's son, who was then a first-grade student in middle school, and three classmates were walking hand in hand along the street called Daikoku-Machi. As the four lads were ambling and talking, there came the flash in the sky.

"The police chief's son remembered his father's warning at once. Hauling his friend with him by the hand, he dashed for a shelter on the pavement, calling to the other two to follow. But they stood still, or kept walking. The two boys in the shelter were saved; the other two, who stayed on the street, seemed to vanish from the earth—they were never seen again!

"Mizuguchi's wife, at the same moment, happened to be standing just outside their house, under the eaves, with a baby in her arms. The instant she saw the flash, she recalled her husband's words of the night before and rushed back into the house. She opened a closet and, with the baby still in her arms, crowded inside and pulled shut the sliding door.

"The house rocked and shook in the terrible blast. When this had passed, Mrs. Mizuguchi came cheerfully out of the closet. The room, and the area outside the house, was covered with innumerable sharp, pointed slivers of shattered glass. Clearly, she had escaped serious injury by shutting herself in the closet.

"It was because of this advice of mine, I learned, that all the police of Nagasaki, having been firmly instructed to take shelter if they saw a great flash like lightning in the sky, were undercover when the blast struck the city, and I was told that not one was injured."

Nishioka was bitterly upbraided by Hiromasa Nakamura, chief of the foreign affairs sections of the Nagasaki Prefectural Office, for not briefing other government officials on the happenings at Hiroshima and the efficacy of bomb shelters.

Many of the foreign section staff were killed in the Nagasaki explosion. "Nakamura complained to me that if I had given him my account of the casualties in Hiroshima, he would not have lost his men," the publisher said. "I could only tell him that I was indeed anxious to tell everyone in Nagasaki what I had learned, but that if I had done so, I would have been liable for violation of the law against spreading 'wild rumors,' and could have been arrested and convicted."

XII

It was a tragic homecoming for Kenshi Hirata. The young accountant's thin, intellectual face was pinched and sad as he trudged along the dusty road to the house at Shin Nakagawa-cho, carrying the washing basin, with his wife's few recovered bones, in front of him on the palms of his two slender hands. Perspiration ran down his cheeks. His steel air-raid helmet bumped on his back. His legs were very tired, and his reflections were melancholy.

Kenshi's two younger brothers had been called into military service and were long away from home. His father and mother, both of advanced years, lived by themselves with their memories in the modest house. The elder Hirata drew consolation from his brush in tracing the beautiful, airy calligraphy of the renowned St. Kobo school in which, after fifteen years of practice, he had become the seventy-fourth in a revered line of masters entitled to be called *sensei,* or teacher.

The old couple wept with joy and relief when Kenshi appeared at the door. The catastrophe at Hiroshima was now well known in Nagasaki through the government radio. Those with relatives and friends in the stricken city were

either frantic with worry, or had accepted, in the fatalistic Oriental way, that their loved ones must be dead. There had been no communication from Kenshi, which indeed would have been impossible, so it was with overwhelming solicitude, laughing and crying at once, that his parents greeted him in the house. It is not true that Japanese are unemotional; it can be proved any day, anywhere in Japan, by simple observation that the Oriental inscrutability so well advertised in the West is a myth, at least in personal relationship, though it may sometimes be resolutely hidden.

"And what of Setsuko?" the older Hiratas asked at once.

At this Kenshi broke down again. It was heartbreaking news for the old folks, who had loved their gentle daughter-in-law as one of the family.

But the average Japanese family, at that stage in the war, was steeled to accept personal tragedy with fortitude. Still, everyone could hope that his own family would be among the fortunate ones to be spared. However, the worst never came as a surprise to anyone in those days, when the high, militant spirit of Japan had been replaced by despair under incessant bombing.

"Only this morning," Mrs. Hirata told Kenshi sadly, "Setsuko's mother herself came to this house and said she thought her daughter must be dead in Hiroshima, because in the night she appeared to her in a dream."

This agitated Kenshi all the more. He decided that he and his father should go at once to his wife's home, with the remains he had carried all the way from Hiroshima in the simple metal vessel.

On the dreary walk to the house of Setsuko's parents,

Kenshi was telling his father about the awful power of the strange bomb, particularly the incredible flash of light and heat that preceded the roar, and concussion that passed all imagination.

"Then, while on the way to my wife's home with her bones under my arm," Kenshi wrote later, "that golden-color ray whose memory was so vivid in my brains flashed in front of my eyes for the second time. I shouted to my aged father at the top of my voice:

" 'This is the very flash!'

"Unconsciously, I shouted again to him, 'Lie face downward!'

"In the immediate moment I was expecting that terrific explosion blast and roar. However, they were not so terrible as those in Hiroshima. I later learned that the spread of the explosive blast was checked by Kompira hill, and that the districts on the side of the hill where my father and I were then did not suffer the most serious damage."

Kenshi and his father were unharmed. "But in two or three minutes," Kenshi wrote, "I saw people running out of their houses, holding their hands over injuries on their heads, faces and bodies. Most of these were wounds caused by flying pieces of glass."

The pair continued to the house of Setsuko's parents, through a city suddenly darkened by the monstrous brown atomic cloud in which bright colors glinted. There was a rising sound of wailing and the smell of burning wood.

"When I reached the home of my wife," Kenshi said, "the house was in confusion. The floor had fallen in, the ceiling was down, and all the paper-covered sliding doors

were blown away." But the family, miraculously, had suffered no serious hurt.

"I must leave to the imagination," Kenshi wrote later, "what my feelings were as I broke the news of my wife's death. When I produced her remains, though they seemed to be prepared for it, the family wept over her terrible fate. When I handed them over to her parents, I felt as if I was relieved of a heavy burden for the first time."

Kenshi's own house, when he and his father returned from their melancholy errand, had been badly shaken, and the ceiling had partially caved in. Mrs. Hirata, alone, had not been hurt but "was at a loss what to do," Kenshi wrote. He and his father put things in order. Then the family again turned to mourning the death of Setsuko.

"If only you could have come back with her, instead of bringing home her ashes, all the family could have had a happy time," Mrs. Hirata said.

Toward evening, the road outside the Hirata home was the scene of a miserable procession of refugees from the Urakami and Shiroyama districts, which had been virtually wiped out by the blast. Many of them badly cut, bruised and burned, they carried what small furniture and other possessions they had been able to salvage, before the fire took over, on their backs and in handcarts.

"It was not difficult for me to imagine the misery in those districts, hit by the bomb," Kenshi said. "The same tragedy and distress that I had seen in Hiroshima was now being repeated in Nagasaki, my home. I wished fervently that I would never see such sights again."

The story of Nagasaki, as it developed in the next terrible

hours, was a repetition of Hiroshima on a smaller scale. But with the city not completely destroyed, as Hiroshima virtually was, there were more facilities and personnel available to care for the tens of thousands of injured and homeless, and dispose of the multitude of corpses that, decaying swiftly in the blazing heat of August in southern Kyushu, became one more hazard to the city's survival.

Nishioka listened wryly to the government radio.

"There was a striking difference between the official accounts of Hiroshima and Nagasaki," he commented later. In the case of Hiroshima, details on the effect of the bomb were made public immediately, perhaps by the prefectural authorities.

"But in the case of Nagasaki, the first announcement said merely that there had been 'an attack by a new-type bomb, and the damage was slight.' The details of the effect on Nagasaki were made public in many stages. First, it was 'slight.' Then there had been 'some injuries.' Casualties were placed first at 100, then 500, and so on, so that it took the country some time to get the picture.

"That is the reason why an impression has been created abroad that Nagasaki suffered little damage from the atomic bomb. But when Hiroshima was hit, word of serious damage spread all over the world without delay."

XIII

THINKING back, Tsutomu Yamaguchi can recall no good reason why he should have slipped out of the Mitsubishi shipbuilding company offices and undertaken the difficult climb up the steep, rocky hill to the watchtower, after the bomb burst over Nagasaki.

"I believe," he says, "that I had some idea that all my relatives and family must have perished in the blast, for my house was within a mile and a half of the explosion center. I must have been thinking that from the tower I could see the extent of the damage. That's the only reason that occurs to me for taking all the trouble to go up there alone."

Peering through the narrow slit from the inside of the tower, like a gun port, Yamaguchi surveyed the smoking area directly beneath the mushroom-shaped cloud.

"I could easily imagine how the victims were, what the destruction was," he said. He himself was feeling light-headed, and feverish; his face and left arm felt as if countless hot needles were being pushed into the flesh.

After some time, he left the tower and slowly walked home. His little house was a pile of broken lumber mixed with smashed furniture. He searched dully for his wife,

Hisako, and their year-old son, Katsutoshi, and eventually found them unharmed in an air-raid shelter.

The next day, Yamaguchi walked to Urakami, to the very center of the blast, to try to find a cousin and his wife and baby, and the mother of his uncle, who lived together in that neighborhood. But the whole area, in a shallow valley, had been wiped out by the titanic blast almost directly above. He was able to locate the site where his relatives' house had stood, and dug in the ashes for some clue as to their fate.

"All I could recover," he said, "was one tiny bone, evidently of the baby. Nothing was known of my cousin and his wife, or my uncle's mother."

Yamaguchi returned to the air-raid shelter which was his only home now, and became very ill.

He lay in the shelter, unconscious, for a week. During this time the left side of his face and his left arm swelled enormously. The burned area became corrupt, and then broke out in great boils that discharged blood, and he became permanently deaf in his left ear.

"After undergoing treatment for about two months, I returned to the office, but I didn't feel like working," he said. "I was quite able physically, now, but spiritually I felt as if I were in a state of vacuum."

Yamaguchi was the only one of the nine doubly exposed to the atomic bombs who suffered a permanent disability, namely his partial deafness. But the Doi baby girl, on her mother's back when she tried to rush from the house after the flash and was pulled back by the kite maker, apparently also received a damaging dose of radiation, or so her father

thinks. About a year after the blast, a swelling developed on the child's neck, festered, healed, then swelled and festered again, and again disappeared, and so on in a more or less regular cycle until the present. The child has also been continually afflicted with boils on the neck and forehead, sometimes two at once, another boil always appearing as one heals. The mother, though not suffering such outward manifestations, became unwell about three years later and has been vaguely ill ever since, Doi said.

Komatsu, the kite maker who saw the destruction of Nagasaki as he walked home from Nagayo station over hill after hill, finally reached his house and found it whole except for broken windows and a partially collapsed wall. His wife, Shikao, who was in the house at the time, was unhurt. His fifteen-year-old son, Tomiaki, who was working at a branch of the Mitsubishi company, suffered one cut on the face. His youngest daughter, Yasuko, eight, was playing in an open field near the house at the time of the blast, and was blown off her feet but uninjured. His other daughter, Kazuko, nineteen, and another son, Shigetomo, seventeen, both employed at Mitsubishi, were not hurt.

Like Yamaguchi, Komatsu also had close relatives living in Urakami. Of this family of eight, only the mother, who happened to be out of the city that day, and the two youngest children, who were playing in an air-raid shelter, lived through the experience.

Akira Iwanaga, who had walked to Isahaya the night of August 9-10, did not came back to Nagasaki for a week. He was then astonished to find the heavily damaged dis-

tricts like a city of the dead, with burned corpses wherever he looked. Some had been placed in coffins, which were piled high, but there were many bodies still lying as they had fallen in vegetable gardens, rice fields, and along the sluggish river. Here and there a dead horse lay bloated in the heat.

Kenshi Hirata was an involuntary witness of mass cremations nightly for ten successive nights in the Irabayashi Primary School grounds opposite his house. Then he returned to Hiroshima.

"When I got back to Hiroshima," he said later, "almost everything was as I had left it ten days before. In some places fires were still smoldering. Bones of human beings and horses were scattered on the roads and everywhere. These sights failed to cause any particular feeling in me then.

"Some people say that sectionally, Nagasaki suffered more severely than Hiroshima. However, I can never agree with this argument. Whatever comparison I made, I had to conclude that Hiroshima suffered more destruction, materially and in personnel, than Nagasaki."

In course of time, all of the nine double survivors settled calmly into more or less the same kind of lives as they had been leading before they were fated to witness the tragic beginning of the atomic age.

Hirata, now married again, is employed at his profession in the department of labor administration, Nagasaki Prefectural Government. Iwanaga is a clerk in the financial

section of the Nagasaki Municipal Government, the four kite makers are still making kites, and the laborer Mishima is still a laborer.

Takejiro Nishioka eventually turned over his interest in Nagasaki's leading newspaper, the *Minyu*, to his wife, a cultivated and brilliant lady, and went into politics. He is now, at this writing, the Governor of Nagasaki Prefecture, and the chief promoter of the proposed Nagasaki Cultural Center to commemorate the city's rise from atomic ashes. Mrs. Nishioka was elected a member of the House of Councilors, the upper chamber of Japan's Diet, or parliament. Both belong to the conservative Liberal-Democratic party and support the pro-American government.

Tsutomu Yamaguchi, whose symptoms after the double bombing strongly suggest that he may have had what came to be called "radiation sickness," was at loose ends for awhile.

"I felt that my life ended in August of 1945," he said some ten years later, "and that whatever might come after was my second life. I left the Mitsubishi company in February, 1946, when a great number of employees were discharged because there was no work for the shipyard. Then I decided that my second life, as I chose to regard it, should be spent in a way that would make a contribution to the people, and I took up educational work. I became a teacher of English in a junior middle school for the next nine years."

When the Mitsubishi company, revitalized upon the termination of Japan's occupation, again became a great shipbuilding concern and there was a heavy demand for

technicians, Yamaguchi returned to his old job. Like the others, he takes no active part in the pacifist activities that have enlisted many other survivors of Hiroshima or Nagasaki, but he says, "I firmly believe we should build in each heart a wall against war."

XIV

Both Hiroshima and Nagasaki have risen from their ashes. There are few signs of the atomic bombings left today, besides the deliberately preserved "Atomic Dome" in Hiroshima, and the remains of the Urakami church in the southern city. Some of the large concrete buildings in Hiroshima, of the seventeen that were not demolished, show marks of exfoliation, or melting, on the granite surfaces, as if the buildings had a sort of acne. And here and there one will find a twisted steel window casing that has never been replaced, a lighter patch of plaster where a hole has been filled in. The effect on humans has not been so easily repaired.

Physically, Hiroshima is a greater city than it ever was before the war, with expanded industries and a new university, besides the cultural growth centered around the World Peace Memorial Park and its institutions. The population has increased by more than half, to 380,000. Growing by 25,000 souls yearly, Hiroshima will soon be Japan's tenth city. This is due largely to expansion in the principal industries—beer, bicycles and three-wheeled trucks—and the enlarged importance of Hiroshima as the trade center

for the Chugoku area. And there is also taking place in Japan a general drift from the rural areas to the cities, by which Hiroshima benefits.

This influx has brought to Hiroshima all the overcrowding and other urban ills evident in most Japanese cities. As a natural outgrowth of these conditions, professional vice has become rampant. The district around the railroad station is a neon-lit jungle of pinball parlors and bars, with a large nocturnal population of streetwalkers and their touts. Not far from the Peace Memorial Park, the red-light district, or the "Gay Quarter" as Japanese prefer to call these sections in every city, is extensive and lively, with row upon row of lantern-lit bordellos whose doll-like inmates call softly to passers-by from the stone-floored vestibules.

Some social workers link the moral degeneration of Hiroshima with the atomic bomb, saying that the great catastrophe that struck the city in 1945 left the youth disillusioned and unmanageable.

But to an average observer, the growth of an underworld in Hiroshima seems no different from the general condition in the cities of Japan and other countries that suffered heavily in the war, with the attendant maladjustments in society. It is estimated that the atomic bomb created 5,000 orphans in this city, of whom 1,800 are still public charges. How many homeless youngsters have taken to dubious pursuits to keep alive no one knows. Again, this is not a situation by any means peculiar to Hiroshima.

The 100,000 or so persons still in Hiroshima who were there when the atomic bomb virtually wiped out the city have spawned a distinct community kept intact by the

Atomic Bomb Victims' Association and a number of similar organizations. Immediately after the war, according to accounts of correspondents who visited the city at that time, the survivors mostly looked upon their experience in a spirit of resignation expressed by the familiar fatalistic phrase in Japanese, *Shikata ga nai*, meaning roughly, "It can't be helped." This changed as the atomic victims were made conscious of themselves as the first casualties of the atomic age. In the intervening years there has grown among this group a spirit often referred to by other Japanese, rather impatiently, as "Hiroshima-ism." It is fostered not only by the Hiroshima organizations but by sentimentally sympathetic foreign visitors to the city, of all nationalities, by the agitators for pacifist causes, and by leftists quick to exploit any public attitudes that can be made to serve their ends.

It is affecting and exciting, nevertheless, on the yearly anniversary of August 6, to watch the mass demonstrations against nuclear weapons held under floodlights in the evening on the esplanade, against the grim background of the Atomic Dome. The performance consists principally of singing and serpentining, with the slogan "No more A-bombs" (in Japanese) screamed over and over by thousands of throats in unison, until the whole crowd is seized by an infectious hysteria.

The millions who suffered saturation bombing elsewhere in Japan do not commemorate their ordeals as the people of Hiroshima do. August 9 in Nagasaki is marked by a simple ceremony of speechmaking and offerings, with a silent

prayer at 11:02 A.M., and then one hears little of it for another year.

The presence of the headquarters of the Atomic Bomb Casualty Commission in Hiroshima, housed in a conspicuous cluster of large quonset-type buildings on top of a hill, naturally contributes to the self-consciousness of the survivors as very important and unusual people, as indeed they are.

The ABCC is a unique organization in the history of medicine. It is a joint Japanese-American enterprise formed in 1946 to study the possibility of late effects of radiation upon the survivors in Hiroshima and Nagasaki. Financed by the Atomic Energy Commission of the United States, the ABCC is a nongovernmental group of specialists formed by the National Academy of Sciences and the National Research Council. It works with Japan's National Institute of Health and the Ministry of Welfare, and has two Japanese associate directors, a Japanese advisory committee, and Japanese on the medical staff, besides about 700 Japanese employees. What the ABCC does, to put it most simply, is to examine survivors of the atomic blasts who were in the area of heaviest radiation, that is, within a mile and a quarter of the center, to try to determine the effects. These investigations, which can only be undertaken with the understanding and cooperation of the victims, have led the researchers into many avenues of vital importance to humanity. The work can be done only in Hiroshima and Nagasaki, and the end of it is not in sight.

"There are over 8,000 human beings in Hiroshima and Nagasaki who experienced early signs and symptoms of

heavy radiation exposure," Dr. Robert H. Holmes, director of the ABCC, once told the writer in Hiroshima. "These," he added, "are among the most important people living."

According to the ABCC's findings so far, 85 per cent of the casualties in Hiroshima and Nagasaki were injured by the intense heat and blast effect of the bombs. The other 15 per cent suffered from an effect new in warfare, ionizing radiation produced by the freeing of neutrons and gamma rays and by the production of radioactive material in the revolutionary type of explosion over the two cities. Some in the critical area escaped harm by being shielded from the radiation, either through luck or by happening to take the precaution of getting under suitable cover at the right time.

Ten years of study of these victims exposed to heavy radiation has produced two significant medical findings: 41 per cent of those so exposed have developed cataracts, against an incidence of 8 per cent among those not so exposed; and among the exposed the occurrence of leukemia, or blood cancer, a disease for which no cure has yet been found, is about one in 400, against a normal expectancy among the non-exposed of one in 5,000.

It is pointed out that none of the cataracts detected has been serious enough to affect normal vision, and that the actual number of cases of leukemia among those exposed to heavy radiation in Hiroshima is only eighty-seven. However, it was a very small bomb by present standards.

Observation indicates that most of those who did not die of "radiation sickness," as such, within a few weeks of exposure eventually recovered entirely and that whatever

physical disability they may suffer now must be from some other cause. A report in July, 1956, to a conference of the Japan Pathology Association stated that out of 902 autopsies performed by Japanese and American doctors in Hiroshima since 1949, death was found attributable to radiation effect in only thirteen instances. These were leukemia cases.

Nevertheless, there is a tendency in the Japanese press to list every death of an atomic survivor as due to the bomb. As the survivors grow older, the figure becomes higher. It may be, however, that exposure to radiation has shortened the life span of the Hiroshima and Nagasaki survivors. This is a study in which the ABCC is now engaged, and it may be the most important of all from the broad medical viewpoint.

"This is actually a profound observation involving one of the most pressing and subtle problems in modern medicine," Dr. Holmes told the writer. "For instance, if the findings should indicate that premature aging and shortened life span occur following exposure to radiation, then one is obviously confronted with the question, 'Why?' Searching for this answer leads to the primary causes, in lower animals at least, of degenerative diseases such as nephrosclerosis and neoplasia, or, specifically, cancer.

"These causes, then, are among the fundamental problems of geriatrics. They are intrinsic to the whole subject of growth and development. In a world's population that is increasing its longevity at an impressive rate, any information available on this subject is an urgent necessity. In a world also entering the atomic age it is most important to understand clearly just how radiation affects human tissues.

"It is possible, of course, and certainly to be hoped for, that this suspected shortening of life span does not occur, but even so, the incidence and cause of degenerative diseases must still be studied among the A-bomb survivors. . . . It is from them, and only them, that medicine must learn what radiation can do."

With the study not yet completed, findings so far indicate that radiation has indeed brought the onset of old age and death somewhat earlier to Hiroshima and Nagasaki. This phenomenon, marked, for instance, by earlier cessation of the menstrual cycle in women, is expectable only among those who received a heavy dose of radiation on August 6 or 9, 1945. For there is no residual radioactivity in Hiroshima and Nagasaki. In fact, contrary to some apprehensions at the time, grass and trees are growing just as thick and just as green at "ground zero" in the two cities as they did before.

Today the ruins of ancient Hiroshima Castle, reduced to shattered foundations by the A-bomb, are a favorite picnic spot for young school children whose parents may have seen the fireball directly over that place.

The ABCC has given close study to possible genetic effects produced by the two atomic bombs, that is, damage to the genes that might appear as harmful mutations in the descendants of the victims. It has been categorically stated that until now no genetic effect whatsoever has been observed. "But there is no prediction for the future," Dr. Holmes says. "We must wait and see."

Among the nine whose stories are told here, only two have become parents since they underwent exposure to

atomic bombing in Hiroshima and Nagasaki. These are Yamaguchi, who is the father of three children born since 1945, and Hirata, father of two by a second wife. As in many other instances checked closely by the ABCC, the Yamaguchi and Hirata children appear to be normal and healthy, with no particular physical defects that suggest a result of radiation effect on the parents.

Will the atomic bombs cause the appearance of "monsters" among future generations in Hiroshima and Nagasaki?

We do not know.

XV

THE SCARS and deformities to be seen in Hiroshima and Nagasaki today, as a result of the atomic explosions, testify to an advancement in the destructive arts of war whereby the individual hazards of combat have been infinitely extended to the mass of the civilian population. This is the present milestone in a progress that began, perhaps, when someone discovered that flame could be fixed to an arrow and shot into an enemy encampment.

Fire, or heat, was responsible for the grotesque disfigurations that are today the most dramatic and horrifying outward manifestations of the work of an atomic bomb. There are many young men and women in Hiroshima and Nagasaki who are barred from normal life by facial disfigurement, or crippling, through keloid growths. Japanese, incidentally, seem to be particularly susceptible as a race to this ugly accumulation of scar tissue, which frequently occurs after routine operations such as Caesarean sections.

The effect of facial disfiguration has been particularly bitter on young women, some of whom hide their distorted features with veils. A number of these, with no hope of marriage because of their shocking appearance, have found

a place in religious life. Others remain in seclusion rather than take the risks of social contact. Some whose faces were unmarred have lost all or partial use of limbs because of keloidal contractures arising from severe burns, causing hands or feet to take permanently twisted shapes.

A great deal of publicity for these unfortunates surrounded the trip to New York of the twenty-five "Hiroshima Maidens," sponsored by Norman Cousins of the *Saturday Review*. They underwent a long course of plastic surgery for their disabilities, with varying success. Surgeons have estimated that perhaps 575 others, in Hiroshima alone could be benefited by similar operations, and various Japanese and American interests are giving thought to this. The response of the Japanese government to appeals for official relief has been indifferent.

Apart from radiation effect, the injuries inflicted by the atomic bombs are the same, taken individually, as have been suffered by victims in the operation of earlier weapons. But the A-bomb transcended, suddenly and dramatically, the familiar limitations on efficiency in killing and maiming. And radiation added the possibility—not yet proved but considered highly likely—that bombs of the future may visit their effects upon generations born long after the event. Finally there is the dreadful thought that atomic war carried to the ultimate may produce crippling or fatal pollution in air and earth the world around, threatening the life of all mankind, whether involved in war or not.

Death and disfigurement by heat and blast were far from unknown in non-atomic warfare. As a matter of fact, the death toll in the conventional bombing of Tokyo over a

period of time was far greater than that in Hiroshima and Nagasaki together. Photographs of the horribly burned victims in Hiroshima, which one may buy for a few cents at the Atomic Souvenir Shop near the World Peace Memorial Park, will remind many World War II veterans of the appearance of soldiers killed by flame throwers or napalm baths. But before August 6, 1945, it probably didn't occur to the average civilian at home that this might happen to *him*.

Looking back over the history of scientific warfare, in which the newest weapons have tended to represent the ultimate in man's inventiveness and knowledge at the time, it would seem logical to conclude that the use of an atomic bomb at some stage was an inevitable development. There are some people, even in Hiroshima, who are glad it was used when it was, so that the world may possibly be spared the threat of an all-atomic war in the future, now that we know the effect of these relatively primitive bombs, and know also the unthinkable possibilities of the fission-fusion bombs developed since.

There is a very vocal school of thought, particularly strong in Hiroshima, that questions the moral ethics of the 1945 atomic bombings. Some argue that Japan was on the point of surrender, even if the bombs had not been dropped. These add that the purpose would have been accomplished if a bomb had been exploded over some uninhabited place, such as an island, as a warning.

All this, of course, is a matter of second-guessing what the Japanese military would have done in a hypothetical situation, and all we are sure of is that there was a powerful

group in favor of fighting to the last man, even after the bombings.

In any case, it is safe to assume that no survivor of the Hiroshima or Nagasaki holocausts is entirely happy that his city was chosen for the *coup de grâce*. But since it was, they hope that these two demonstrations, forecasting the ultimate in military efficiency, will encourage sentiment for the abolition altogether of war as an institution.

Something of this spirit has spread throughout Japan, accounting for the strength of the leftist parties as the professed opponents of Japanese rearmament.

Sentiment in Hiroshima and Nagasaki regarding the United States is about as mixed as it is nearly everywhere in Asia. The two cities share the general Japanese feeling of war-guilt, and are particularly uncomfortable at references to Pearl Harbor when the moralities of war and A-bombs enter the discussion.

In Japan, great store seems to be placed in the apology as a mender of human relations. The Japanese constantly apologize for Pearl Harbor, and they—especially in Hiroshima—would like the United States to apologize for the atomic bomb. Apparently, one gathers, that would make it all right. At least, say the Japanese, if the United States apologized, they would feel better about the whole unfortunate business, and then at last all bygones would really be bygones.

I recall one Mrs. Moto, a bent little lady of seventy-seven, whom I visited in a ramshackle hut of boxwood and rusted iron sheeting on the site where her home had stood until it was wiped out on August 6, 1945. She lost her two sons in

the blast, her husband was severely burned about the back of the head and shoulders, and the old couple were destitute except for a government dole amounting to some $6 a month.

At about the time of the tenth anniversary of the bomb, I asked Mrs. Moto what she thought of the United States. Tears ran down her withered cheeks. "All we in Hiroshima want," she said, "is for the United States to say she regrets and apologizes."

I recall also hearing substantially the same answer to this question from a Hiroshima newspaperman, who added: "But mind you, don't think for a minute that we wouldn't have dropped it on you if we had had it first!"

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